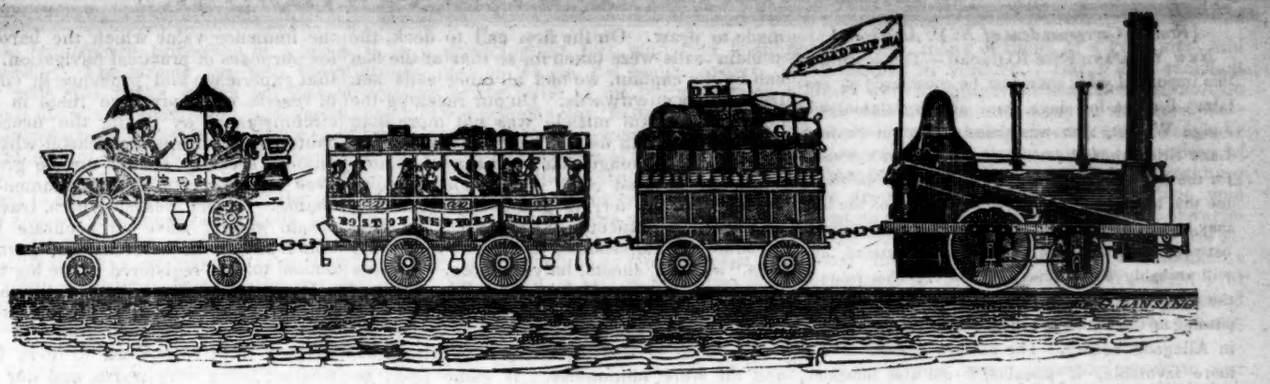

AMERICAN RAILROAD JOURNAL,
AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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AMERICAN RAILROAD JOURNAL, &c.

NEW-YORK, NOVEMBER 1, 1834.

Baltimore and Ohio Railroad.—The gross receipts on the finished portion of this road for the year ending 1st October, from tolls on passengers and merchandize, were $205,436. The items were 94,844 passengers, paying $89,181, and 561,121 tons of merchandize, paying $116,255.

Trenton and Philadelphia Road.—We understand that the whole line of the splendid Railroad between Philadelphia and Trenton will open for the first time early next week. This road is about thirty miles in length, and is one of the best constructed and most direct and level in the country—so much so, that it is calculated that the whole distance may be travelled, on extraordinary occasions, in about one hour. The usual time will in all probability be about an hour and a half.

A depot is in preparation in Kensington, where omnibuses from all parts of the city will arrive at, and depart from, with passengers.

From the forthcoming number of the "Mechanics' Magazine and Register of Inventions and Improvements."

It is with great pleasure that we insert the following from our esteemed friend, and we solicit the attention of all who are engaged in the construction of railroads to its contents.

We have no room this week for remarks, but shall recur shortly to the subject; in the mean time shall be happy to learn the opinion of some of our scientific correspondents.—[Ed. M. M.]

To the Editor of the Mechanics' Magazine:

My dear Sir,—Agreeably to your request, I now give you the particulars of my patent for the application of caoutchouc, or Indian rubber, in solution, to ropes used on the inclined planes of railroads, and shafts of mines.

My specification states that the ropes as now used on the inclined planes of railroads, by being exposed to the weather, are liable to decay and become rotten, as well as to great expansion and contraction, and that I propose to prevent such decay and variation in length, by covering said ropes, or the separate strands of which such ropes are composed, before being spun into ropes, or when so spun, but before being used, with caoutchouc, or India rubber, dissolved in the purified naptha of coal tar, in Barbadoes tar, in petroleum, in sulphuric ether, in spirits of turpentine, or in such other substance as possesses the power or property of dissolving caoutchouc or India rubber, and permitting it to dry into its hard state without being clammy.

In announcing my improvement to the public, through the medium of your valuable journal, Mechanics' Magazine, and Railroad Journal, I trust to your kindness to offer such remarks on its utility to parties interested in railroads with inclined planes already made, as well as those now making, that, by its adoption, an immense annual expenditure for ropes would be saved, and the dread of their breaking entirely done away with, thereby affording perfect security to passengers in passing inclined planes. Even the knowledge and conviction of that security may be the cause of constructing railroads with inclined planes in mountainous districts, where, without it, it would be looked on as impracticable. Your's, truly,

Patrick Mackie, M. D.

29th October, 1834.

All communications may be addressed to you, or to your humble servant at the Albany Hotel, No. 31 Courtlandt st., New-York.

[*Correspondence of the Journal of Commerce.*]

Rattlesnake Gold Mines,
Safford Co., Va., Oct. 7, 1834.

The following is a geological description of the gold regions of Virginia.

In passing from tide water to the Blue Ridge, the whole country is undulating, consisting of hills of moderate elevation, intersected with vallies or ravines of moderate depth. The soil for the most part is composed of bright red clay, highly colored with the oxide of iron, and formed from the decomposition of vertical laminæ of Talcose slate or schist. As you approach the metaliferous veins, this red clay becomes intermixed with fragments of quartz, comminuted by the action of the atmosphere, and mechanically spread upon the surface for some distance by the action of the rains and ploughing, and the like, from year to year. At the distance of sometimes a few inches and sometimes a few feet below the surface of this bright red soil, is found the talc or talcose slate, generally of a greenish grey color, soapy to the touch, and of a greasy lustre. This rock is the *Talkschiefer* of Germany, and is commonly known throughout the world in gold mining districts, as gold slate, or as the slate peculiar to gold regions. It is composed of magnesia from 30 to 40 per cent., silex from 50 to 60 per cent., and oxide of iron, allumine and sulphur, in small and variable proportions. The leaves or laminæ of this slate are vertical, and often intermixed with iron pyrites, containing gold in a foliated form, very much like thick gold leaf. These iron pyrites are generally richer in gold when found in the slate along side of a quartz vein. The quartz veins are vertical walls of white flint containing oxide of iron and frequently iron pyrites and specular oxide of iron beautifully crystalized.

The diameter of the quartz veins varies from the fourth part of an inch to six or eight feet. All these veins are found between and parallel to the layers of slate, and extend longitudinally in a direction 41 1-2 degrees North East. Sometimes the gold is found in quartz veins in large masses, and sometimes distributed through the same in fine grains, and hidden, as it were, by the oxide of iron. Frequently specimens of this kind are rich when no gold is externally visible. Sometimes the large or main vein is found to be rich, and then again the gold is absent from it altogether. In such cases the gold is generally found in parallel thread veins frequently at some distance from the large or principal vein. Sometimes these veins dip like coal strata, and pass under rivers and rise again; and again they are cut asunder by streams, and the rocks of the vein broken or ground to sand, by attritions, the gold washed down the stream in grains and overspread with gravel. As these grains of gold are indestructible, they are not unfrequently carried by currents and floods down into secondary regions, where they assist in forming new sandstone, conglomerate and the like. These deposits of gold are often very rich, and much of the gold of Virginia is obtained by carefully washing the sand found at the bottom of the gravel in the streams and low grounds.

Other metals are usually associated with the gold in the veins and in the slate. I have never failed to find a greater or less portion of silver. I have also in some instances, found copper and blende, antimony and galena. In many instances the sulphuret of iron or hepatic pyrites may be said to be the dwelling place of the gold.

This whole gold region is based upon granite, and evidently belongs to that formation which Professor Blumenbach denominates the second class of primitive rocks. As yet I have not discovered that they contain any organic remains.

Very respectfully yours, F. Shepherd.

[*From a Correspondent of N. Y. American.*]

New York and Erie Railroad.—The success of this important work may now be considered as certain. I met a few days since at Binghamton, with Judge Wright, who was then on his return from Lake Erie, where he had been to examine the route for the termination of the Railroad. He informed me that he had ascertained that the level of the lake may be attained without difficulty at about midway, between the villages of Dunkirk and Portland, and will probably be continued to each. The route of the western division is found to be highly favorable; passing up the Canisteo; thence to or near Angelica, in Allegeny county. The eastern section is still more favorable, if possible, I am also informed, than heretofore reported. I learned from Mr. Seymour, that its most sanguine friends will be disappointed in this part of the route, as but *one*, and possibly not even one, stationary power will be necessary to reach the Hudson River. The survey is now nearly completed to the river; and the maps and estimates will probably be ready at an early period of the session of the Legislature, when we shall expect to see a liberal spirit evinced by those whose duty it is to foster and develope alike the resources of every part of the State.

Now is the time, I think, to call another Convention upon the subject. Sufficient information may be laid laid before it to enable it to act understandingly as well as efficiently. It should be held on the line, say at Binghamton, or Oswego; and measures adopted to insure a full representation from the city and all those counties interested in its success. It would doubtless be well attended.

Chenango Canal.—The Canal Commissioners met at Binghamton on the 14th instant to decide upon the termination of the Canal. Several routes were surveyed, and of course had their advocates; but the decision was a judicious one,—passing through the centre of the village to the point where the two rivers unite.

Account of a Visit to Mexico.

Xalapa, U. S. Mexico, June 28, 1834.

To the Editor of the Mechanics' Magazine:

Dear Sir,—You will recollect that we sailed from New-York on the 21st ult. for Vera Cruz. Nothing worthy of note occurred until the 2d of June, at which time we came into contact with a *water spout*, lat. 29° 3′ north, long. 74° west from Greenwich. The cabin passengers were below at breakfast. The second mate, who had charge on deck, gave us a sudden alarm, by hastily reporting at the cabin gangway, "A water-spout off the weather-bow, sir!" Those of us who were aware of the dangerous consequences of coming in contact with one of these aerial missiles of destruction, immediately arose from our seats and ascended on deck. Here we beheld a meteor, grand and beautiful indeed. It approached us in all its elemental grandeur, towering to the clouds, and looking down to scorn the power of man. Its distance from us, at this period, might have been about two miles, and, as the breeze was very light, we were completely exposed to its effects in case it should make towards us. It was watched attentively for a few minutes, when it was observed to settle very much, and, it was supposed, had broken. It was also judged that its course was such that it would not strike us in case of its renewal. We were shortly convinced of our error. The passengers were scarcely re-seated at the breakfast table, when the second officer again reported, "It is making for us, sir!" The captain immediately went upon deck, and in an instant after cried out at the top of his voice, "All hands on deck; passengers on deck to lend a hand!" I have said the wind was light; moreover, it was a leading wind, and previous to our seeing the water-spout, we had every sail set that could be made to draw. On the first call to deck, the studdin'-sails were taken in, so that at the last call by the captain, we had all other sails set, from royals downwards. On our reaching the deck the dreadful missile was not more than 100 fathoms from us. It had renewed its former height and magnitude, and came booming on at our devoted craft with a loud rushing noise, in all its terrific grandeur, threatening us with instantaneous destruction. To clue up sails was impossible, therefore every thing was "let fly," sheets, halyards, &c. All was now done that could be done. The state of suspense and intense anxiety for a few moments is more easily conceived than described. Some were at prayer, audibly or otherwise, and all were motionless. It came upon us midship, the first contact heeling the vessel to the leeward. When about half over, the vessel righted, and when it left us it gave us a heel to the windward. Not a sail was rent nor a spar carried away. Not a man was injured, neither did a drop of water fall on deck.

Previous to the water-spout reaching us it was thin—in fact, was easily seen through; but after it had passed it, seemed to increase in density and opacity; hence, agreeably to the best received theory, it is probable that the water-spout, at the time it struck the vessel, had not been in its renewed state (before alluded to) a sufficient time to have become mechanically charged with water, otherwise it would have burst upon us and inundated, if it had not destroyed us. The diameter of the spout at the bottom was about forty feet, and it was very attentively and closely observed as it approached. That it had all the characteristics of a whirlwind is certain, and the spray which was thrown off *tangentially* from its exterior, showed most conclusively that it gyrated in a *spiral* form, its motion being upward, thus raising water upon principles somewhat resembling those of Archimedes' screw. Its revolution was against the sun—i. e., from right to left. I do not mean to have it understood that I am by any means *convinced* that the water in these meteors is always *raised*; it may, and probably does, sometimes descend from the clouds. When the water is raised mechanically from the ocean, it will be salt; when it descends from the clouds it will be fresh; but we have so few authentic accounts of their *bursting on the ocean*, that I am inclined to the belief that they are neither more nor less than whirlwinds raising sea-water the same as they raise objects upon the land.

This spout was first seen at half past 7 A. M., and at this time the barometer was one-eighth of an inch lower than it was an hour before. Just previous to our contact, the barometer had fallen an additional eighth of an inch, and immediately after the spout had passed us it was the same. An hour after the last observation, the barometer had ascended to the same height which it had previous to the appearance of the spout.

The aspect of the heavens was cloudy, somewhat broken, but having little motion. Some of the clouds were more elevated than others, the cumulo-stratus and nimbus of Howard. No rain had fallen during the morning.

The following statement will exhibit at one view the states of the barometer and thermometer during the interval of time included in the above account, viz.:

	Barom. Inches.	Ther.
At half past 6 A. M. - -	29.75	71°
When the water-spout was first seen, at half past 7 A. M., 25 to 30 minutes before striking us, - - - - -	29.625	70.5°
Just previous to the spout's striking us - - - -	29.5	—
Immediately after do. do.	29.5	70°
One hour after the last observation, - - - -	29.75	71°

In the third observation the thermometer was not noted for want of time.

The above is only a slight additional proof of the immense value which the barometer has for purposes of practical navigation. It is true that experience and prudence in commanders of vessels often preserve them in dangerous circumstances by taking the necessary precautions, but this is no reason why every additional security should not be given to the lives and property of our seamen and merchants. Every vessel which traverses the ocean should have an accurate barometer, which should be carefully and punctually attended to, and registered in the log book.

Our passage through, or rather across, the gulf or bay of Mexico, was tedious and unpleasant, a remark that will apply to the whole passage from New-York to Vera Cruz; the weather being very warm, and our accommodations on board very much limited. I have heard the splendor and beauty of the tropical skies extolled so much and so often, that I took it for granted I was to have a feast of vision which would in some degree compensate for the inconveniences of an imprisonment of many days upon the domains of Neptune. But, alas, disappointment came. There is infinitely more splendor and *elasticity* (if I may be allowed the expression) in our northern skies, partiolarly in a clear November night,. It is true, wesee some stars in tropical climes which are not visible to us at home; but there is a lassitude, a certain je ne scais quoi, that takes away all the zest for me.

On the 18th of June, we entered the harbor of Vera Cruz, very much to our gratification. I believe few persons could be found who would not prefer terra firma to the deceitful and treacherous gulf of Mexico. After having undergone an inspection by the visiting surgeon, and he having ascertained that there were no cases of cholera among us, the Vera Cruzans being very apprehensive of another visit from this Protean disease, we were permitted to land. Some of us had been unwell for a few days previous, owing to our having been becalmed and exposed to excessive heat for some days in the gulf. We were moreover informed that there were cases of vomito in the city, and therefore determined to remain on board a day or two, until we should become in a slight degree, at least, acclimated.

At sunrise the next morning, a scene, novel and very interesting to an American, presented itself to our view. The atmosphere was unusually clear and transparent, and a gentle sea breeze gave it a wholesome and grateful feeling. Directly in front of us lay the antique and ruinous looking city of Vera Cruz, with its gorgeous domes, and structures of various appearances, and architecture, mostly partaking of the Moorish style. In our rear lay the castle of San Juan de Ulua; on our left the mountain of San Martin, reaching to the clouds, with other mountains; and islands and bays of greater or less extent. In some of these bays, at a distance of from one to three miles, many fishing boats were to be seen, the crews of which seemed to be busily employed in their avocation. In a south-westerly direction the Orizaba, 17,400 feet in height, rose in all its majesty, its snow-capped summit poising its everlasting congelation far above the access of man. The rays of the rising sun were reflected from this peak in the softest roseate hues conceivable.

At the expiration of two days on board, we landed at the Mole, and, having passed the custom house without difficulty, took up our abode at a very neat and comfortable house, kept by Mr. Wm. Fulton, an American, whose politeness and attention are well calculated to insure custom, and give general satisfaction.

Vera Cruz is a regularly laid out city, its streets running at right angles to each other, and most of them are of a spacious width; some of the cross streets are, however, narrow and filthy; in fact much could not be said in praise of the cleanliness of any part of the city which we saw. The number of dead, and, of course, putrifying animals, and other filth, which lie in different parts of the city, would vitiate and

render the atmosphere unhealthy in a much higher latitude. The streets are well paved and have wide side walks, which are formed of a cement made with lime, sand, and shells, which acquires a peculiar hardness, and is very durable. I do not know that any particular proportion of these substances is required, and am inclined to believe the judgment of the maker is the guide. The houses of this city have all of them flat roofs, and are covered with cement; particular pains are taken to keep them perfectly clean, in order to preserve the purity of the rain water, which runs from them into large cisterns.

The public buildings of Vera Cruz consist of a palace, in which are the Government House, prison, &c., a Custom House, several churches, one or two convents, a theatre, hospitals, barracks, and some few others of minor importance. The public square, or plaza, is sufficiently spacious, but far from being elegant or attractive in any particular. It has on the north side the Palace, an ordinary looking building; on the east, the Cathedral, an old building of mixed architecture, principally Moorish; on the south and west, ranges of buildings having dwellings above and shops under the piazzas or "portales," below. The dwellings are generally commodious, having large, high, and airy apartments. Some of them are elegant, having towers or turrets on their roofs, admirably adapted for enjoying the sea breeze, a luxury inappreciable in latitude 19° 11′ north.

The increasing prevalence of that dreaded disease and scourge of this place, the *vomito*,* (a disease differing somewhat from the yellow fever of the United States and Havana,) and the oppressive heat and danger of exposing ourselves to the sun, compelled us to limit our excursions and examinations more than we desired. During the time we remained in the city, the average height of the barometer was 29.96 inches, and that of the thermometer, in the shade, 87°. The thermometer is often at this elevation in midsummer in New-York, but the heat of the sun is not near so oppressive as at Vera Cruz. In the cool of the evening, however, we sometimes ventured upon a ramble. The great place of resort for the Vera Cruzans, (the "Battery" of Vera Cruz,) is the Mole, which is now in a very dilapidated and decaying condition. It is said that its repair has been in contemplation for a long time. One thing is certain—if not soon repaired, it will be totally destroyed. But the climate of Mexico in these parts is admirably adapted to the production of procrastination among its inhabitants: "Manana," (to-morrow,) is the word with them. The Mole, as it is, is invaluable to the citizens of Vera Cruz, it being a place to which they resort for enjoying the sea breeze, social chit-chat, and the burning of tobacco, which both sexes are in the habit of doing in their mouths.

The public walk, "Alameda," lies in a southeasterly direction from the city, commencing at the eastern gate and extending about a third of a mile in an easterly direction. This, at some former period, must have been a beautiful, spacious, and shady promenade. Some few of the trees which were planted in rows on each side, are still standing. The way betwen these rows is well paved, and stone seats of a neat construction and appearance are placed along, at intervals, on the sides, for the accommodation of the promenaders.

The defence of Vera Cruz, in a military point of view, is very strong. The principal fortification is the castle of San Juan de Ullca. This is situated on an island to the northward of the town, distant about half a mile. It appears to be the well constructed work of skilful and competent engineers. It has a fine armament of cannon, mortars, &c., immense tanks for holding water, and can garrison 3000 men. It is a quadrangular fort, with four bastion fronts, one of which, the south-western, is bounded by the water of the harbor, having a depth of five fathoms close to the wall. On this front, large ring bolts are inserted and secured in the wall for the purpose of mooring shipping, to protect it from the violence of the *northers*, violent hurricanes peculiar to the gulf of Mexico. The other three fronts are bounded partly partly by the water of the harbor, and partly by a deep and wide ditch or moat covered by a glacis. This work is said to have cost about *thirty-five millions of dollars!* Report says that the King of Spain, when informed of its cost, went to his palace window, *in Spain*, to look at it, observing, that a fort which cost so much ought to be visible from all quarters of the globe. A similar work in the United States would cost about $600,000.

The population of Vera Cruz does not probably exceed five thousand souls at the present time. The former population is said to have been from 13 to 15,000, when it had a flourishing commerce. The causes which have contributed to this retrogression are various and evident: 1st, The unsettled and insecure state of its commerce during the first and succeeding revolutions and internal commotions, which have existed in a greater or less degree for the last fifteen years; 2d, The insalubrity of the climate is so great, that foreigners and others will not risk an exposure in it without comparative inducements, and no other inducement can generally exist than that of acquiring wealth, and since the accomplishment of this is almost entirely dependent upon a flourishing commerce, it follows that whatever is detrimental to this branch of human industry, is also detrimental to the prosperity of the city. Since the establishment of the present form of government, the duties are so onerous as to crush what ought to have been supported and fostered, and the immoral tendency of *smuggling* is thereby introduced. But it may be urged in reply, that the expenses of a newly formed government of a young nation, which has just thrown off the yoke of bondage, must be borne and obtained in such a way that the people may be least sensible of it. This may be true; but if the people are not sufficiently intelligent to know what most promotes their prosperity, they are hardly fit for a republican form of government. The ruinous effects of the retrogression of commerce upon this city cannot escape the casual glance of the stranger.

The harbor of Vera Cruz is objectionable on many accounts, but it might be greatly improved. Vessels are now obliged to discharge by means of lighters or launches, and they are much exposed to the hurricanes called northers, which come in with great violence from the north and west. The construction of a breakwater from the westernmost point of the reef, about half a mile to the northward of the castle, could easily be effected, and would render the harbor comparatively secure and safe.

The soil in the vicinity is mostly sand and unproductive, consequently vegetables bear a very high price. The market, however, is tolerably good.

This place will always be memorable in the history of this country, it being the spot upon which that celebrated conqueror and most extraordinary man, Cortez, landed with his army in 1519.

On the 24th June we left Vera Cruz on our journey for the city of Mexico. Our road for the day lay partly over a level sand beach, and partly through bushes and hillocks of sand. It was excessively warm, the thermometer being at 102° in the shade, the sun nearly vertical, no breeze, and the reflection from a loose sand striking into our faces, was very annoying. Add to this, we could proceed in a moderate walk only, and were obliged to stop at the end of every five or six rods to allow our horses to rest. For the last three miles of this day's journey, the vegetation on each side of us was luxuriant, and in all its tropical beauty. The trees were, many of them, of a good size, and all clothed in verdure. Large and excellent limes were hanging from branches frequent on both sides of us, and many of the trees were nearly invisible, being covered with a lichen or moss, resembling the missletoe, the fibres of which hung from the tops of the trees reaching the ground. The color of the lichen was whitish yellow. Shrubs and flowers of variegated hues also adorned our path. But the almost insupportable heat was a tremendous drawback to our pleasures. We arrived at Santa Fe a little before dusk, having passed over, for this day's journey, a distance of about nine miles.

Here a new scene presented itself to our view. A large company of "Arrieros" (muleteers) had already unpacked their mules, and were encamped for the night on each side of the road. On one side their cooking fires were arranged in a row under large shady trees. At each of these fires an Indian was busily engaged in preparing maize or Indian corn, for the purpose of making a kind of cake called "tortilla." These cakes are made by first crushing and then baking the corn, in the following manner: A flat stone (generally porphyry) about 15 inches wide, and 20 inches long, is placed in an inclined position by means of two legs at one end, the other end resting upon the ground. This stone is called "metate." A stone pin or roller, of a semi-cylindrical shape, about 18 inches long, serves in the hand to crush the corn upon the metate, the corn being frequently moistened with water. This roller is called the "mano," or pestle. When the corn is completely crushed, so as to form a kind of paste, it is made into flat cakes between the hands, and baked on grating over the fire. These are tortillas, very inferior to our hoe-cakes.

On the other side of the road, in the front line, were the pack-saddles of the mules standing next to each other, in a perfect order of arrangement, each saddle being as well known by the arrieros as the men in the ranks of a military company are known to the captain. The second line was formed of the tents, or rather roofs, under which the arrieros sleep. This shelter is merely a coarse piece of sacking. The next line was formed by the bales and packages of goods which they were to transport to Mexico. These were properly and carefully protected from the effects of rain by a covering of mats, which were secured by ropes on each side, fastened to wooden pins, driven into the ground, and extending the mats in such a manner as to form pent-roofs, similar to the fly of a tent. Behind these the mules, about 250 in number, feeding at several long troughs, formed the last line.

Some of the muleteers were attending to the mules; others had taken to their tents; and others were dancing, singing, gambling, drinking, and flirting with the girls. These arrieros have the universal character of being the most honest and industrious class of people of the Mexican Republic. An instance of dishonesty seldom occurs among them. Yet they are a wild looking jovial race, resembling nothing in our country. My next will be dated from Mexico.

J. P.

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* The remedy most relied upon and universally used for this disease, is large doses of lime or lemon juice and sweet oil, repeated until an operation is produced.

Improvement in Railways.—It has been resolved to make trial, on the Birmingham railway, of slabs of slate fixed in a bed of concrete, as a substitute for the usual stone sleepers. We have since been informed that, in an experiment previously made on the premises of Messrs. Cottam and Hallem, in the presence of the engineer and several of the directors of the Company, it was found, by the hydraulic press, that a cubic inch of slate will sustain a pressure of three tons and a half, and that consequently slate of an inch and a half thick is more than equal to any pressure which it can be required to support on a railway. The saving in expense, if slate is ultimately adopted, will be at least one half.—[Engl. pap.]

MISCELLANIES, *Foreign and Domestic.*—The following notices are translated from Berzelius's last yearly report on the Progress of Science, by Dr. Lewis Feuchtwanger, of New-York.—[American Journal of Science and Arts.]

1. *A new ore of Antimony* has been discovered in the Hartz mountains by Zinkin, which resembles zinkenite, and appears to be also a subantimonio-sulphuret of sulphuret of lead with sulphuret of silver.

2. *A new Tenantite* has been examined by Hemming from a newly opened mine in Cornwall, which consists of

Arsenic	11·5
Copper	48·4
Iron	14·2
Sulphur	21·8
Silex and Gangue	5·

3. *Vanadiate of Lead.*—Johnson discovered some species of vanadiate of oxide of lead at Wanlockhead in Scotland; one species occurs on calamine in form of warts, and as large as a pin's head. It is of a dirty white, and appears to be dew of a pale red powder, has a resinous fracture, and specific gravity of about 7. The other is black, and looks like earthy manganese; a third has not yet been described, but Johnston has sent specimens to the Collection of the *Royal* Swedish Academy. It is regularly crystallized, and appears to be a bi-vanadiate of the oxide of lead.

4. *Plumbacalcite* has been described by Johnson as a mineral found at Wanlockhead in Scotland; it consists of carbonate of lime and carbonate of lead; it is crystallized in the primitive rhomboid of the calcareous spar; it occurs both transparent and opaque, and consists of 92·2 carbonate of lime, 7·8 carbonate of lead. By heat the carbonic acid is evolved, and the mineral assumes a reddish color. This mineral offers an interesting proof of the isomorphism of oxide of lead with a rhomboid of carbonate of lime.

5. *Pelokonite.*—Richter describes an uncrystallized mineral, occurring in Chili, with malachite and copper-green under the above name, (from πελος brown, and κόνις powder.) It contains phosphoric acid and the oxides of iron, manganese, and copper; it has a blackish blue color, gives a liver brown streak of a conchoidal fracture and weak lustre; its specific gravity is between 2·5 and 2·57.

6. *Wolchouskoit.*—Kammerer described a new mineral from Siberia, which is amorphous, bluish green opake, and of conchoidal fracture; its touch is greasy, gives a bluish green streak, and adheres slightly to the tongue; consists of silica, alumina, oxide of chrome, and water.

7. *Worthite.*—This new mineral has been described by *Hess*, and found in a scapolitic boulder from the neighborhood of Petersburg. It is colorless, crystalline foliated, of specific gravity of about 3·0; harder than quartz, infusible before the blow-pipe, and dissolves with difficulty and with effervescence; in soda it becomes transparent, and yields water by heating in a tube; it becomes dark blue with nitrate of cobalt. Hess found it composed of

Silica	40·58
Alumina	53·80
Magnesia	1·00
Water	4·63

The formula is AAq + 8S.

8. *Pyrargillite.*—Nordenskold discovered and analyzed two new minerals from Finland, the one he calls by the above name from its character of diffusing a clayey smell by heat. It is partly black, light, and lustrous, like the Lordawalite, and partly bluish granular or red, and without lustre; it seldom occurs pure in uncrystallized masses, the form of which approaches to a four-sided prism, with truncated angles; sometimes it is traversed with chlorite, so as to appear sparkling by polishing; its specific gravity is 2·505; its hardness 3·5; it is decomposed completely by muriatic acid; it occurs in granite, and it consists of

Silica	43·93
Alumina	28·93
Protoxide of Iron	5·30
Magnesia with some Protoxide of Manganese	2·90
Potassa	1.05
Soda	1·85
Water	15·47
Loss	0·58

Formula. $\left.\begin{matrix}F\\M\\Mg\\N\\K\end{matrix}\right\} S^3 + 4AS + Aq.$

9. *Amphodellite.*—This is the other mineral discovered by the above author from the lime quarries of Lozo, in Finland; its crystallized form bears much analogy to that of felspar; it is clear reddish, resembles in fracture scapolite, with two passages, which form an angle of 95° 9′; its hardness is 4·5, and its specific gravity 2·793; it consists of

Silica	45·80
Alumina	35·45
Lime	10.15
Magnesia	5·05
Protoxide of Iron	1·70
Moisture and Loss	1.85

Its Formula, $\left.\begin{matrix}C\\F\\Mg\end{matrix}\right\} S + 3AS.$

There are a few more minerals described which seem to require a thorough examination in order to establish their claims to be called new, as for instance *Skugisan* and *Monophan*, belonging to the family of the zeolites, and noticed by Breithaupt.

The Mengite from Siberia, and the Monticellite from Vesuvius, and noticed by Brooke and Berzelius from Galloro near Rome, a kind of anhydrous zeolite, which is difficult to fuse, and becomes gelatinous with muriatic acid; it is noticed by Necker De Saussure.

In regard to the Xanthite, described in a former number of this Journal, which occurs in Orange County, N. Y., and consists of

Silica	32·708
Lime	36·308
Alumina	12·280
Oxide of Iron	12·000
Protoxide of Manganese	3·680
Moisture	0·600
Loss	24·24

Berzelius observes, that if this analysis approaches to accuracy, and if a small part of the oxide of iron is contained in the mineral as a protoxide, the formula would be $2\left\{\begin{matrix}C\\Mg\\F\end{matrix}\right\} S + \frac{A^3}{F^2} S.$

10. *Ozokerite, a new combustible Mineral.*—This mineral occurs at Slauik, Moldavian District, near the Karparthes, and has been called by Glooker, Ozokerite (οζειν to smell, κηρος wax); it is of a talcose structure, the color between green and brown, of the specific gravity 0·955 to 0·970; it may be kneaded between the fingers, melts into a clear mass in the flame of a candle, is soluble neither in alcohol nor water, even when boiling, and but slowly so in ether and spirits of turpentine. This mineral may serve as an excellent material for lamps or tapers, burning like wax, with soft clear flame, and diffusing on its being extinguished an agreeable odor. Specimens are shortly expected from the locality.

11. *Platinum in France.*—A specimen of platinum has been exhibited before the academy at Paris, which has been extracted in combination with silver from galena, and which contains 0·00022 of Platinum; and since 1100 lbs. of the galena are daily produced from the mines, the daily produce of platinum will be 1 lb. 4 oz. 4 drams and 28 grains. The mines of Cohfolens and Aloue Depart. of Choraute are the localities for this platinum.

Essay on the Indian Summer, read at a meeting of the Maryland Academy of Sciences, by one of its Members, Baltimore, Dec. 16, 1833. [From Silliman's Journal.]

(Continued from page 661.)

From this detail of facts, it appears to us highly probable that electrical causes are negatively concerned in the production of the Indian summer; for instance, as during the warmer months they act vigorously by producing an intermixture of the different currents or strata of air; so, on the contrary, at the approach of winter, they act with diminished energy, and hence suffer portions of air, differing greatly in their temperature and humidity, to remain for a length of time without flowing into each other. We might mention evaporation as one of the causes concerned in the production of haze or clouds, but as it is dependent on, and influenced by, existing temperatures, we shall, in summing up our arguments, show how far the mean hygrometic condition of the air is effected by the annual change of temperature, as also by particular winds, and by the local conformation and geographical position of the adjacent country. Having now noticed the more prominent causes concerned in the production of the phenomena of the Indian summer, we proceed to explain, as far as possible, their mode and extent of operation.

The first important conclusion that we draw from the above details is, that the formation of haze or clouds, viewing the subject in its most general outline, must depend essentially on a reduction of atmospherical temperature, which brings the water contained in the air to a visible sub-vaporous state, constituting haze, or to an actual liquid condition, (minutely divided,) forming clouds. We believe further, that this visible alteration, or increased density, is confined chiefly or wholly to the lower stratum of air, and is immediately referable to partial and slow currents of moist winds from a southerly or south-easterly direction, (as meteorological records confirm,) and that these moist winds usually follow cool dry westerly or northerly ones, which having prevailed extensively both in the higher and lower regions of the atmosphere, have lowered its temperature and reduced its absolute quantity of moisture. Now, if we suppose this moist and warm current of air, (extend

ing perhaps in height some hundreds or even thousands of feet above the earth's surface,) to come into contact with a cool dry northerly one, the obvious result would be a reduction of temperature, attended with hazy or cloudy formation; while the superior stratum of air being altogether westerly or northerly, would remain dry and cloudless, which is, in fact, the precise condition of things during the Indian summer.

It might be asked whether those partial currents do not occur in the spring and summer season, and if so, why not give rise to the same phenomena? The reply would be, that the general tendency to foggy or cloudy weather is obviously less at those seasons than in the fall, from the existence of a cause which we mentioned in the early part of this paper, viz., that the mean temperature of the air being on the increase during the spring and summer seasons, (from the more direct action of the solar rays on the earth's surface,) its capacity to receive moisture and contain it invisibly is also augmented. Hence, an easterly wind will not produce rain, nor indeed sensibly affect the transparency of the air, until it has continued for such a length of time as to bring a great excess of moisture; when the solar heat becoming also obstructed, a further reduction of temperature and consequent precipitation occurs. And again, two other very important agents concur to prevent these phenomena from appearing in warm weather: we allude to the excessive heat at the earth's surface acting on the lower stratum of air, and the vigorous movement of electrical agencies on the higher regions, both of which causes concur to produce a constant and steady admixture of the atmospherical strata; the former, by rarifying the lower stratum and causing it to ascend; the latter by exploding and destroying large portions above, and reducing the temperatures of others, which as rapidly descend, and it is this activity of circulation among the currents of air during warm weather, that prevents the formation and continuance of a hazy or foggy atmosphere.

In confirmation, we may remark, that during the cold summer of 1816, when of course both these causes were acting with a diminished force, there was a very constant haziness of the air, so much so, that the sun could be viewed with the naked eye until 9 or 10 o'clock in the morning. A celebrated traveller in the south relates a fact which will convey some idea of the actual condition in which we suppose the lower stratum of air to exist during the prevalence of hazy weather; he remarks "that over the ocean the sky exhibits a paler blue than over the land; when from the summit of the Andes the eye is directed towards the great South Sea, a haziness uniformly spread to about 10,000 feet in height is observed to cover as with a thin veil the surface of the ocean—this appearance takes place in a season when the atmosphere viewed from the coast, or at sea, appears pure, and transparent; the existence of the opaque vapor is announced only to mariners by the little intensity of the azure color of the sky." Here it is evident that a slight additional density in this lower stratum would intercept a large portion of solar light, and give a turbid or hazy appearance to the general atmosphere.

By a very careful reference to Capt. Brantz' meteorological tables, we find, that in a very few instances, he notes hazy weather co-existing with a northerly wind—this fact, however, does not militate against the view we have offered, viz., that hazy weather is the result of a southerly or easterly current, supervening to a cool northerly one—for it is evident the same result would be produced if the differing portions of air only come in contact—with this qualification, that the superior dryness and force of a northerly wind would give a much shorter duration to the existence of haze, the continuance of which would be incompatible with a dry westerly or northerly wind.

We shall now proceed in a very general manner to inquire, why the Indian summer makes its appearance more particularly at the close of autumn. This part of our subject, by no means void of difficulty, appears capable of solution in the following manner. It is well known that a constant and general wind prevails within the tropics, moving round the earth from east to west, called the trade wind; observation also confirms that without the tropics, both north and south, the prevailing winds are westerly: the object of which appears to be a restoration of the equilibrium, which is disturbed by the trade winds—this westerly or north-westerly current, (for it would be oblique in our parallel,) being often counteracted during the summer by opposite winds, (brought into existence by local causes—and the direct action of the solar heat on our continent during the summer, and early part of the fall,) comes to act again with renewed force, during the first cold weather of autumn, and continues at intervals until it has, as it were, more than fulfilled its intention, and is hence usually succeeded again in November and the early part of December, by what may be termed a southern re-action—at which period the phenomenon of the Indian summer occurs, being at the precise time when the general predisposition of the air to form haze or fogs is at its maximum.

It appears to us also, that the existence and duration of the Indian summer in this country has an important connection with the extensive forests and uncultivated lands, peculiar to America, and it is worthy of remark, that according to the recollection of our older inhabitants, its former duration was often three or four weeks, whereas its present continuance is short and uncertain, seldom exceeding ten or fifteen days. It appears further, that this decline has been somewhat regular, keeping pace with, and evidently influenced by, the gradual uncovering of the country. Humboldt states, that plains abounding with trees are usually characterized by a foggy atmosphere. This is particularly the case with Brazil and Guiana, and the great central basin of South America, which receives the waters of the Amazon. In the middle of a continent overspread with forests, and watered by equatorial rains, the humidity is nearly the same as on the ocean.

The temperature of the atmosphere diminishes at an average of one degree for every three hundred feet, hence the humidity is greatest in the lower regions. The hygrometric condition of the air also varies, (of course,) with different elevations of country, the more elevated possessing the drier atmosphere. Again, in tropical latitudes the clouds form at a greater height above the earth's surface, because the point of condensation or congelation is confined to those cold elevated regions, whereas in the temperate zones, (and especially in the fall season, when the mean temperature of the air is but a few degrees above the point of deposition,) fogs and clouds form near the earth's surface—all these facts, if closely examined, corroborate the views we have been trying to establish—but which we confess are too imperfectly and theoretically founded.

One of the most remarkable phenomena of the Indian summer is the peculiar redness of the sky, which in our opinion is explained on the principle that the white beam of light being unfolded in its passage through the foggy stratum near the earth's surface, its more delicate rays are either reflected back, or absorbed, while the stronger rays of red and orange all penetrate to the earth's surface, and by their excess tinge surrounding objects with their own color, and especially the lower atmosphere, which reflects and refracts them in every possible direction: much on the principle that, to the eye of a person who has descended to a great depth in a diving bell, every thing appears reddish, because nothing but red rays can penetrate the dense medium which is interposed between him and the sun. Again this redness of the air, together with the mechanical irritation produced by the denseness of the aerial vapor, excites a painful affection of the eyes—this sensation, connected with the smoky appearance of the sky, induces great numbers of the inhabitants of this country to believe that the Indian summer consists of a smoky state of the air, produced by burning the vegetable decidua which are collected together in the fall season for this purpose, or, as some will have it, the firing of the neighboring mountains. This appearance of actual smoke is however an optical illusion, produced by the foggy appearance of the air, and which seems to find confirmation by the great irritation of the visual organs, effected by the excess of red rays, &c.

The increased temperature which accompanies the existence of this hazy weather is referable to several causes, viz.

1st. The prevailing wind, which, being from a southerly direction, is usually warm.

2d. The heat radiated from the earth's surface is immediately returned, (on a well known principle,) being reflected back by the haze of the atmosphere, while lastly the temperature is further increased by the condensation of both air and moisture during the formation of the foggy stratum.

We have now hastily explained, or rather touched upon the leading phenomena of the Indian summer, but acknowledge to have written on this subject rather with a view to elicit further inquiry from others than to establish any theory of our own; every phenomenon connected with the earth's atmosphere is highly deserving of our most earnest investigation, for daily observation confirms, that not only the health, but also the moral qualities of our species, are greatly under the control of its influences. We hope therefore to see this subject taken up by some one whose time and opportunity are less restricted than our own, and whose superior knowledge of the laws which direct and govern our atmosphere shall enable him to place it on more sure and elevated ground.

COMMERCE OF THE WEST.—We have this morning a letter from Buffalo, dated Oct. 23d, from which we make the following extract—"Seventy-two vessels were in our harbor this morning, bound to the west—each vessel averages about 400 barrels bulk, making at least in the whole 25,000 barrels. Our warehouses are still full of goods, and the wharves are crowded. Boats from the east are constantly arriving."—[Commercial Adv.]

Animal Mechanics, or Proofs of Design in the Animal Frame. Part II., showing the Application of the Living Forces. [From the Library of Useful Knowledge.]

(Continued from page 616.)

Of Sensibility.—Under this head are comprehended, not any sentiment or feeling of the mind, but the sensations of the body.

We form our notions of sensibility from that of the skin; and it is no doubt necessary that we should do so. It is in constant communication with things around us, and affected by their qualities; it affords us information, which corrects the notions received from the other organs of sense, and it excites our attention to preserve our bodies from injury. We are so familiar with the painful effects of injuries upon the surface, that there is nobody who does not imagine that the deeper the injury the more dreadful the pain. But, on the contrary, it is a well established fact, that to such irritants as would give the skin pain, the internal parts are totally insensible. And it is equally certain, that though the nerves, the instruments of sensation, are incapable of producing any perception without the brain, yet the brain itself, the part which is the seat of intellect, and to which every impression must be referred before we become conscious of it, is itself as insensible as leather. These considerations show us, that sensibility to pain is not a necessary result of life, and they naturally lead to the inquiry for what purpose is sensibility bestowed, and how is it distributed in the body?

We have first to show that the skin has sensibilities exactly suited to the functions it has to perform. Science no doubt informs us, that warmth and cold are only relative degrees of heat; to the skin they are distinct sensations, and excite in different ways both the mind and the bodily functions. Cold braces and animates to exertion, whilst the warmth, which is pleasant to us, is genial to all the operations of the animal economy. Their alternations are the most constant sources of our enjoyment, and at the same time conduce to exertion and to health. All this, however, belongs to the skin exclusively; parts internal, although peculiarly sensible to their proper stimulus, give no indication of sensibility to heat; if there be internal sensibilities of heat, they are morbid and deceptious. Molten lead would produce pain and death, being poured into the interior of the body, but the sensation of burning is a property of the surface only. It is the excess of that particular sensation, which is calculated, like the other endowments of the skin, to suit the medium in which we live, and to force us to the regulation of the temperature necessary to preserve life.

Touch, or the sensibility to bodies pressed upon the skin, is likewise a distinct and appropriate sense. The sensibility of the skin to pricking, cutting, or tearing, is also in curious contrast with the sensibility of the solid internal textures, as bone, cartilage, and ligament. We have arrived at the full comprehension of this subject very slowly. Disagreeable experiments have been made, but the following is as interesting as it was innocently performed. A man who had his finger torn off, so as to hang by the tendon only, came to a pupil of Dr. Hunter. "I shall now see," said the surgeon, "whether this man has any sensibility in his tendon." He laid a cord along the finger, and, blindfolding the patient, cut across the tendon. "Tell me," he asked, "what I have cut across?" "Why, you have cut across the cord, to be sure," was the answer. By such experiments it became very manifest, that bone, gristle, and ligament, were insensible to pricking, cutting, and burning. Were they therefore insensible? The reader will answer—Surely, it is a matter proved. But before we finally decide, let us take this into consideration,—that the sensibilities of the body differ in kind as well as in degree; and every part has its peculiar kind, as well as its degree; and every part has its kind of sensibility with reference to its function, and also with reference to its protection from violence. If the membranes between the bones of our great joints, or the cords which knit the bones, were sensible in the same manner and degree with the skin, we should be incapable of motion, and screwed to our seats, as the man appears to be who has a violent attack of acute rheumatism.

But although these bones and cartilages, or gristles, and ligaments, be not sensible as the skin, or the surface of the eye, they possess that which is suited to their condition, which permits their free use, and yet limits that too free exercise which would be injurious to their textures, or raise inflammation in them. The ligaments and tendons, then, which are insensible to pricking, cutting, and burning, are sensible, nevertheless, to stretching and tearing! It is remarkable that such men as Drs. Hunter and Haller, the luminaries of their science, should have held the opinion that the bone and the membrane which covers it (the *periosteum*), the gristles or cartilages, the ligaments of joints, and the tendons of muscles, were insensible parts, and yet be in daily attendance on those who suffer the pain of a sprained ankle, where there are no parts to suffer but those enumerated, and where the pain, excessive in degree, was felt in the instant of the sprain. These considerations explain to us that pain is the safeguard of the body. This capacity of conveying painful impressions to the mind is not given superfluously to all parts; on the contrary, the safe exercise and the enjoyment of every part is permitted without alloy, and only the excess restrained.

This subject is finely illustrated by the apparent insensibility of the heart. The observation of the admirable Harvey, the discoverer of the circulation of the blood, is to this effect. A noble youth, of the family of Montgomery, from a fall and consequent abscess on the side of the chest, had the interior marvellously exposed, so that after his cure, on his return from his travels, the heart and lungs were still visible, and could be handled; which, when it was communicated to Charles I., he expressed a desire that Harvey should be permitted to see the youth and examine his heart. "When," says Harvey, "I had paid my respects to this young nobleman, and conveyed to him the king's request, he made no concealment, but exposed the left side of his breast, when I saw a cavity into which I could introduce my fingers and thumb; astonished with the novelty, again and again I explored the wound, and first marvelling at the extraordinary nature of the cure, I set about the examination of the heart. Taking it in one hand, and placing the finger of the other on the pulse at the wrist, I satisfied myself that it was indeed the heart which I grasped. I then brought him to the king that he might behold and touch so extraordinary a thing, and that he might perceive, as I did, that unless when we touched the outer skin, or when he saw our fingers in the cavity, this young nobleman knew not that we touched the heart!" Other observations confirm this great authority, and the heart is declared insensible. And yet the opinions of mankind must not be lightly condemned. Not only does every emotion of the mind affect the heart, but every change in the condition of the body is attended with a corresponding change in the heart: motion during health—the influence of disease—every passing thought, will influence it. Here is the distinction manifested. The sensibility of the skin is for a purpose, and so is the sensibility of the heart. Whilst the skin informs us of the qualities of the external world, and guards us against injury from without, the heart, insensible to touch, is yet alive to every variation in the constitutional powers, and subject to change from every internal influence.

There is in the several organs of the body, as it were, a distinct life; that is, they possess sensibility, the grand endowment of life, necessary to their condition, and adapted to their appropriate stimulus. The impressions made upon them will sometimes rouse them into activity, or call muscles into action which are necessary to their functions or for their protection; and this oftentimes without reference to the mind at all, and consequently without our consciousness.

Perhaps we have the most agreeable example of this in the eye. That organ has been selected in the Preliminary Discourse of the Objects and Pleasures of Science, as showing how mechanical advantage is taken in the arrangement of the muscles to produce velocity of movement in guarding the eye. But this fine mechanism would be lost if the excitement depended on our will,—if there were not a sensibility appropriated to the action, and an influence quicker than thought. It is not by feeling the pain of the offensive body, or by estimating its dangers, and acting on the conviction, that we close the eye to avoid injuries. This would be an operation all too slow for the intended purpose; and, therefore, the muscles, possessing these extraordinary provisions, are put in relation with a sensibility more admirable still. So when a light foreign body touches the eye-lashes, they give alarm, and cause a motion, both of the eye-lids and eye-ball, quicker than thought. The eye-lashes, seated on the tender extremities of sensitive nerves, preserve the eye in two ways—by guarding its interior from the lateral light, and by exciting the motion of the eye-lids, even before the offensive body can touch the eye's surface.

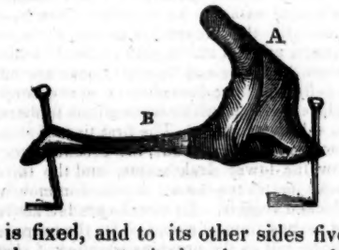
We may take another illustration to show how sensibility, one of the endowments of the living part, is adapted to the mechanical organization, and with an appropriation more admirable than the mechanism. When we speak of the sensibility of the skin, it is still possible to misconceive its nature, and to suppose it accident merely; but in the instance to be adduced, the sensibility is different, and it is put in connection with a hundred muscles; without this high and peculiar sensibility, and its multiplied relations to muscles, independent of volition, the mechanism we are about to describe would be quite useless.

The top of the wind-pipe is called the *larynx*, and consists of five elastic cartilages. These do not merely keep the sides of the wind-pipe apart, and the passage for the breath free, but they perform offices important to the economy both of body and mind; they are an essential part of the instrument of voice; they at the same time guard the lungs from injury.

Fig. 24.

The *thyroid* cartilage is the largest of the cartilages of the larynx, it is that we feel projecting on the fore part of the throat, called the *pomum adami*, (A.) It is a protection to the fine apparatus behind it, and indeed this is the reason of its name, (*scutiform*, like a shield.) Within the thyroid stand the *arytænoid* cartilages, (B.) This cartilage is of an irregular triangular form. It is socketed or articulated on the cartilage below, and is perfectly moveable. To the corner which projects forwards the ligament

Fig. 25.



(B) is fixed, and to its other sides five little muscles are attached; these muscles, by moving the cartilage, draw and vary the position of the ligament. It is these cartilages and this ligament, which, vibrating in the stream of air, give the tremor, and vocalize the breath; the tones so produced are articulated in speech.

This is a subject far from being exhausted in our philosophical works, and may call for observation afterwards;* but at present we may look on these ligaments, not as the *cordæ vocales*, but in another of their offices —forming the slit which opens and shuts in breathing, for the protection of the lungs. But here it is pertinent to remark, that in the structure of an animal body one organ is made subservient to several functions, without interference in the performance of any of them. This is especially true of the larynx. It is one of those uses only, and the least important, that we have at present to observe.

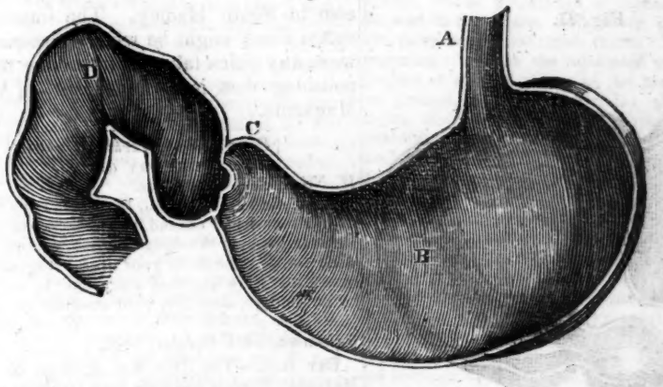
The ligaments being invested with the lining coat, or membrane of the wind-pipe, draw it into the form of a slit like the till of a shop counter, and this is the chink of the glottis (*rima glottidis*.) This slit opens and closes with every inspiration, moving as we see the nostrils do in breathing. But the most admirable thing of all is the acute sensibility given to this part, and to no other, so that the lightest husk, or seed, or smallest fly, drawn in with the breath, and touching the margin of the chink, is caught there by the rapid action of the muscles and consequent closing of the aperture. Now, were the provision for the protection of the lungs to be only thus far perfect, there would be an effectual means of preventing the intrusion of foreign matter into the delicate cells of the lungs, but not for its expulsion from the entrance which it had reached. Accordingly, although the sensibility of the glottis is put in operation with the shutting of the chink, it also animates another class of muscles, viz. all those which, seated on the chest, compress it, and force out the air in coughing; and these combining in one powerful and simultaneous effort, whilst the glottis is closed, overcome that constriction, and propel the breath through the contracted pipe with an explosive force, which brushes off the offending body. There is one thing more necessary to this most important though familiar action—the lungs are never empty of air: in breathing we do not fully expel the air; if we did, there would be a period of danger occurring 17 times in a minute, for in the first part of each inspiration, something might be drawn into the wind-pipe which would suffocate. But by this provision of air retained in the lungs more than necessary to respiration, and which it is possible to expel by a more forcible expiration, there is always a possibility of coughing and expelling the offensive thing at any point of time in the act of inspiration.

The sensibility seated in a spot of the throat so beneficently, does not extend into the wind-pipe; for we cannot more admire the perfect adaptation of this living property, than the circumstance of its never being bestowed in a superfluous degree, nor extended where it is not absolutely required. Just as the sensibility of the skin protects the parts beneath, so in the same manner does the sensibility of the top of the wind-pipe protect all the interior of the tube, and the lungs themselves, without the necessity of this property of irritability extending through the whole continuous surface.

The simple act of sneezing affords a very curious instance of the mutual adaptation of muscular activity and the governing sensibility. The sensation which gives rise to this convulsive act is seated in the membrane of the interior of the nostrils, and we are not surprised with the difference of sensation from that in the throat which excites coughing. But is it not a very curious thing to find some twenty muscles thrown out of the action excited by irritation of the nose; and as many excited which were not in the class of those influenced in coughing; and for the very obvious purpose of shutting the passage by the mouth, or at least forcibly driving the air through the nostrils? No act of the will could so successfully propel the air through the nose in such a way as to remove the offensive and irritating particles from the membrane of the nose, and clear those passages.

These last examples of an appropriate sensibility might introduce us to an acquaintance with those internal sensibilities which govern the actions of parts quite removed from the influence of the will; but the description of them may be deemed unnecessary. We shall just hint at the guard which nature has placed on the lower ori-

Fig. 26.



fice of the stomach, to check the passage which the appetites of hunger and thirst may have given at the upper orifice (A) to aliments not easy of digestion. This lower orifice (C) is encircled with a muscular ring; the ring is in the keeping of a watchful guard. If we are employing the language of metaphor, it is of ancient use. The Greeks called this orifice *pylorus*, which signifies a porter,* and his office is this: When the stomach has received the food, it lies towards the left extremity, or is slightly agitated there. When the digestive process is accomplished, the stomach urges the food towards the lower orifice. If the matter be bland and natural, it passes, and no sensation is experienced. But if crude and undigested matter be presented, opposition is offered to its passage, and a contention is begun which happily terminates in the food being thrown again to the left extremity of the stomach, to be submitted to a more perfect operation of the digestive powers seated there. It is during this unnatural retrograde movement of the food that men are made sensible of having a stomach. Yet the sensations, how unpleasant soever, are not to be regarded as a punishment, but rather as a call on reason to aid the instinctive powers, and to guard against disease by preventing impure matter from being admitted into the portion of the intestinal canal which absorbs, and would thus carry, those impurities into the blood to engender disease.

Such are a few examples of the variety in the sensibilities of the animal frame; guarding us against external influences when they would threaten destruction to the framework, and adjusting the operations of inter-

* For a full description of the Vocal Organs, together with engravings illustrative of the same, the reader is referred to page 117, vol. iii. of this Magazine.

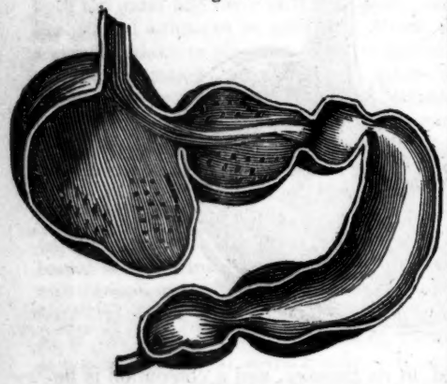
* The upper orifice was called by them *œsophagus*, as it were the *purveyor*, from two words signifying to bring food

nal parts too complicated and too remotely situated for the superintendence of reason.

Medical authors, without being empirics, do, notwithstanding, take great advantage of our ignorance. We can all of us take warning from the sensations experienced in the process of digestion, and there can be no harm in giving every man a confidence in the sensibility of his stomach, and in its indications of healthy or disturbed functions. We have the best proof of what we wish to inculcate in the action of the ruminating stomach. A cow swallows the gross herbage, and fills its large first stomach. When it chews the cud, the stomach, by its action, rolls up the grass into distinct pellets, or balls, with as much regard to the office of its being rejected into the mouth, as we do in masticating for swallowing. When the ball is brought into the mouth and chewed, it is again swallowed; but in descending into the lower part of the gullet, a muscle draws close the aperture by which it passed into the large stomach in the first instance, and it is now ushered into a second stomach, and so successively onwards to that stomach in which the digestion is performed. The curious muscular apparatus by which this is accomplished needs not to be described; but surely, the sensibility which directs it, which, kept apart altogether from the will, is yet in its results so like the operations of reason, presents a subject of just admiration.

The elastic structure of the camel's foot, the provision around its eyes for ridding them of offensive particles, the power of closing its nostrils against the clouds of sand, and its endurance of fatigue, would not enable it to pass the desert, unless there were provisions for the lodgement of water in its stomach, and unless this apparatus were animated by peculiar sensibilities; for there

Fig. 27.



are muscles to retain the fluid in the cells of its stomach, only permitting it to ooze out according to the necessities of the animal; and there is a muscle, represented in the figure above, which pulls up the one or the other of the orifices of the different stomachs, to receive the food from the lower end of the gullet, according to its condition, whether to be deposited merely as in a store, or to be submitted to the operation of digestion.

The surprising thing in all this is not so much the mechanical provision as the governing sensibility. What, for example, should in the first place impel the grosser food, when collected, into the first stomach? What should, in the next place, and after rumination and mastication in the mouth, carry it into the third stomach; since water is carried into neither of these, but into the cells of the second stomach?

Yet, after all, this only brings us back to a sense of the operations of our own bodies. The act of swallowing, the propulsion of the food into the gullet, and the temporary closing of the wind-pipe at such a time, is just as surprising. This latter operation is never deranged but by the interference of the will. If the individual attempts to speak, that is, to govern these parts by the will, when they should be left to these instinctive operations, or if terror, or some such mental excitement, prevail at the moment of swallowing, then the morsel may stick in the throat.

All this shows how perfect the operations of nature are, and how well it is provided that the vital motions should be withdrawn from the control of reason, and even of volition, and subjected to a more uniform and certain law.

But the point to which we would carry the reader is this, that though there are the proper sensibilities of the body, with reference to perception or consciousness, yet there are others no less curious, which control the internal operations of the economy; and that the mechanical provisions are but a type of what is promised to him who will look into the sensibilities of the body for the proof of power and contrivance.

Now, the human stomach, though not so complicated in its apparatus of macerating and digesting vats, is possessed of a no less wonderful degree of governing sensibility, which may be trusted as surely as the most skilful physiologist.

ROTTEN STONE.—This useful article, of so much importance to the workers in metals, and in house-keeping, where knives, forks, and brasses are, to be kept in proper condition, is found in West Springfield in this State, and also in South Hadley. The importation of rotten stone might be wholly dispensed with, were any pains taken to introduce the native polishing dust into the market.—[American Magazine.]

[*From Niles' Weekly Register.*]

THE DRY ROT.

H. Niles, Esq., Baltimore.

DEAR SIR:—I send you, herewith, copy of a communication that I caused to be placed in the Navy Department at Washington last winter, which I wish you to publish in your useful Register for the benefit of those who may see proper to make use of it, and oblige, dear Sir, your obedient servant,

WM. PATTERSON.

Baltimore, 18th October, 1834.

DRY ROT.—The Dry Rot in Ships of War and Merchant Vessels has long been a subject of serious and anxious concern. Many plans for their preservation from this evil have been suggested and tried without success. Having, for a long series of years, had considerable experience as a constructor, owner, and employer of Merchant Vessels; and, believing that I have succeeded, at least I have succeeded to my own satisfaction, in preserving ships of this description as long as they are likely to be useful or profitable—and I therefore feel prompted to unfold my plans and my experience to the Navy Department.

In order that those plans and that experience may be better understood, I shall commence with my situation and observations in early life.

In the year 1766, at a very early age, I was placed in the counting house of a shipping merchant in Philadelphia, which city was, at that time, celebrated, perhaps, beyond any other place in America, for fine vessels. My employers were largely engaged in the shipping business—they built a ship or vessel every year or two: here I had a favorable opportunity of seeing and becoming familiar with the building, equipage and employing of merchant sea vessels. Owing to these circumstances, I acquired so great an attachment and fondness for vessels that they have adhered to me through a long life. Then, as now, the speedy decay of ships was a matter of serious consideration, and every scheme for their preservation that was suggested, was tried, but without answering any useful purpose. Some merchants, in building vessels, allowing their frames, when raised, to remain for a length of time on the stocks, exposed to the weather; others smeared the timbers with fish oil; and others again used oil and paint; all of these experiments were attended with little or no success. In one instance, I knew the frame of a vessel to be plyed with fish oil throughout an entire summer; and, in the fall of the year, when she was about to be finished, it was discovered that the oil had penetrated the timbers more than a quarter or half of an inch: this proved to be little or no protection, and the experiment was abandoned. In another instance, I knew of a very fine vessel built (for a Charleston packet) with so much care that she required no caulking nor repairs for four years; at the end of that time, when she was carried into dock to be caulked, she was found to be so totally destroyed by the dry rot as to be unworthy of repair, and was broken up. Her rapid decay was attributed to the unusual care which had been taken of her whilst running.

Some few, even at that early period, made use of salt; but a great prejudice existed against this mode, owing to the belief that it corroded the iron fastenings (copper was not then used in fastening our vessels), and the apprehension that the dampness in a salted vessel might be injurious to the cargo.

I became a ship owner in the year 1773, and one of my first considerations was, how should I preserve that description of property from speedy decay? Observing that timber, when sunk deep in swamps or in the water, lasted for ages, I concluded that exclusion from the air and saturating the pores of the wood with moisture, must be the true secret for its preservation. Reflecting on this circumstance, and perceiving that the wooden floors of ware houses used for the storage of Bay salt, were always damp in moist weather, I was led to the conclusion that Bay salt, properly applied, must have the effect of preserving timber. Under this impression, I adopted the following plan with all the vessels I have built from that time till the present, (a period of more than sixty years, as I am still a ship owner;) while building, when the bends and bottom planks are on, and before delling, I have caused three sets of stoppers to be placed fore and aft between all the timbers, to keep the salt in its place. The first tier of stoppers are placed at the floor heads, the second immediately below the lower deck beams, and the third between decks just above the air streak, common in all double decked vessels. Air streaks are left above the first and second tiers of stoppers, for the purpose of adding more salt as the previous supplies of that article settle or are dissolved. Just before finishing the ceiling of the vessel, the salt is filled in among all of the timbers, from the lowest tier of stoppers to the upper deck—taking care that the salt in the upper tier is well rammed down, (if wetted so much the better,) for, after the plank-shears are laid and secured in their places, the salt cannot be re-placed without incurring too much trouble and expense.

Having experienced great difficulty in preserving large timbers, (especially transoms) above light water mark, I have, of late years, had such pieces bored through the centre with an auger of two inches or two inches and an half in diameter:—these holes are filled with wetted salt, and then plugged at both ends before placing the timbers in the vessel.

In the forward and after parts of the vessel, where the timbers are so close together that salt cannot be introduced among them, I have found it necessary to incase the timber and confine the salt in this way. In one instance I had all of the knees and the steps of the masts, in a fine ship, boxed in and filled with salt: this answered a very good purpose, but it is too troublesome in merchant vessels.

I have not only sailed my vessels in the manner pointed out above, in the first instance, but I have had them examined carefully every two or three years, and where the salt has wasted or settled, a fresh supply has been added.

In all my experience, I have never found a defective timber in vessels thus prepared, and thus taken care of, and I am persuaded that the dry rot may be entirely prevented by adopting the above precautions. As a proof of the good effects of the above mode, I will add, that I have two vesses now running, which are perfectly sound and trust-worthy; one of them is 31 years old, and the other 25, and the only repairs that have been given to their hulls,

were the renewal of the waist planks of both, and the quarter deck of one of them. This was not owing to the decay of the plank, but to the circumstance of its being fastened with iron; the corrosion of the iron caused openings where it passed through the wood: had copper fastenings been used, the decays would not have happened. I think all vessels of war ought to be secured with copper fastenings, and no iron ought to be used when it can possibly be avoided.

I have seldom used the live oak in the construction of vessels, as it is hard to work, and too heavy for merchant ships: I greatly prefer the timber of our bay—white oak, locust, cedar, and yellow pine. I use the white oak for the frames and for plank from the keel up to and including the bends. From the bends to the upper deck, I form the frame of locust and red cedar, an equal number of pieces of either kind, alternately distributed. The sides, quick-work, decks, upper beams, and cailins, are formed of the heart of yellow pine. Latterly, I have fastened the sides and decks with copper.

My vessels have generally been employed on long voyages, to the East Indies and South America; and, to guard against delay and accidents on such voyages, I have fitted them out in the following manner: They are copper fastened—then sheathed with yellow pine boards one inch in thickness, put on with copper nail s of two inches or two inches and a half in length; a layer of strong paper, dipped in tar, is placed between the pine boards and the bottom of the vessel; and another layer of paper, prepared in like manner, is ploced between the pine boards and the copper. The copper sheathing that I use weighs from 28 to 32 ounces the square foot. In this way the vessel may be said to have five bottoms—two of wood, two of paper, and one of copper.—They are so tight that it is necessary to have cocks, through which water may be introduced into the hold to keep the vessel sweet. An additional advantage is, that they may be run with safety two or three years longer than they could do, if they were coppered on a single bottom of wood.

One of my vessels ran seventeen years and wore out three sets of sheathing copper before I removed the pine boards; fearing that the main bottom might require some attention in consequence of the decay of the oakum, I stripped off the sheathing boards, and discovered, to my surprise, that the bottom and seams were in perfectly good order—indeed it appears as if the water had never penetrated to the main bottom, and that the sheathing of wood might have remained on with safety for many years longer.

The year before the breaking out of the late war with Great Britain, I commenced building a fine vessel, and had her frame raised, her bends on, and bottom planked, when I determined to proceed no further. I erected a shed over the vessel, under which she remained four years before I concluded to finish her. All possible care was taken of her, yet some of the large pieces of timber were found defective, especially the transoms—timbers 18 inches square were found to be entirely destroyed by dry rot, although the interior exhibited no symptoms of unsoundness. It was owing to this circumstance that I resorted to the above recited plan of boring the large timbers and filling the holes with salt.

For the preservation of vessels of war, the method which I have pointed out, and which I have pursued, would be of great consequence: it would save millions annually to those governments, which, from choice, or from necessity, keep fleets in commission.

The only difficulty in the way of its introduction arises from the prejudice against the use of salt, under the imprcssion that it causes too great a degree of moisture in the places allotted for the accommodation of the officers and crews. I have experienced no inconvenience in this respect, when the cabins are lined with dry boards, attached to the inner ceiling. Nor have I in any instance found that any danger has happened to the cargoes, in consequence of the moisture.

To overcome any inconvenience that might be apprehended, it is only necessary to prepare the accommodations for the officers and men in ships of war, by fastening strips of plank an inch thick up and down, to the sides of which strips a sheathing of dry boards can be attached. This will effectually prevent the esape of the moisture. The northern and eastern fronts of our country houses are sometimes secured in this manner—from north east storms.

I have mentioned bay salt as the only kind that ought to be used for the preservation of vessels, owing to its quality of giving in moist weather—dry stoved salt does not posess this quality, and is therefore unsuitable.

I have had some experience with fast sailing vessels, vulgarly called *Baltimore clippers*, and I have witnessed their rise and progress in two wars.—Some of them have performed wonders—it is only necessary to say that they require great care and judgement in their construction and equipment, and that they should be commanded by men trained in their management. WILLIAM PATTERSON.

Baltimore, 26th February, 1834.

THE VOICE OF THE MECHANICS.—The following speech, delivered some weeks ago by Mr. Van Winkle, at the Mechanics' Meeting in Brooklyn, will sshow what are the sentiments of real mechanics on the subject of the oppressions they are now subjected to by the system of State Prison Monopoly.

Mr. Chairman:—I rise, by request, to offer a few remarks on the interesting, absorbing subject, that has called us together this evening. I know not whether the remarks I am about to make will be considered obtrusive; I can only say that I hope not. Most of those present have, no doubt, had an opportunity of reading the Address and Resolutions of the Delegates to the Utica Convention in August last. I doubt not it is satisfactory to all classes of citizens, as well others as mechanics. How could it be otherwise? since it details harmony and good feeling, the sure presage of ultimate success in a righteous cause.

Mr. Chairman, the genius of our government repels oppression and injustice; and, let me ask, sir, what can be conceived more unjust and oppressive than to establish a system which, in the language of Mr. Jefferson, "corrupts large portionsof citizens, and makes them pay the price?" Is this not literally true as respects the State Prison Monopoly in its bearings on mechanics? Its destructive effects are felt in every workshop in the country;—nay, directly or indirectly, by every class of community. The merchant, the farmer, the professional man—all—all feel its injurious effects, for all have a deep interest at stake in the moral purity of the mechanics; for in their intercourse with society, all classes come, in business or otherwise, in daily contact with mechanics. All are, therefore, interested to prevent the mechanics from becoming depressed in character and feelings, or demoralized in their habits. They have the numerical force, and hence the power, to make themselves respected among their fellow men; and where that power is constitutionally, calmly—yet determinedly exercised, it augurs well for the amelioration of society in general, and will be hailed as a new era in the moral and political world.

Who, more than mechanics, contribute to the comforts of society, or to the advancement of the arts and sciences? Who, more than they, stood forth in the front ranks at the times that have been emphatically called "the times that tried men's souls?"—Who did more, whether in the tented field, or hard-fought battles—in long-suffering and determined purposes, to gain our liberty and independence from British thraldom, or in the senate and legislative halls, to secure to our country the proud appellation of "a free and independent nation?" To enumerate all, would be an arduous—to discriminate, might be considered an invidious task. I will simply ask, where was our Franklin, our Sherman, our Rittenhouse, our Green, besides thousands of others, not perhaps, as conspicuous in the page of history, but, nevertheless, as useful and efficient as any class can boast. And can it be, for a moment, supposed that a class of men who claim such members, can submit, without a struggle, to be injured, degraded, and rendered despicable by a system so unjust and so odious to themselves and their children, as this present State Prison system? Forbid it, Justice! forbid it, common sense!

We have, Mr. Chairman, in the pursuit of our rights, to contend with a foe subtle and persevering, for the speculator on the necessities of honest men is reckless and insatiate in the pursuit of his ends. No arts will be left untried—no subterfuge or prevarication, however preposterous in appearance to the honest and ingenuous mind, will be left unassayed to throw doubt and suspicion on the motives that have actuated us in taking the stand we have. At one time we will be represented as wishing to establish a new political party; at another, to raise up a party exclusively of mechanics; and again, at another, of colluding with one or the other of the two great political parties that at present agitate this country.

Fellow mechanics! let their misrepresentations pass for all they are worth; but let us strictly adhere to the principle upon which we commenced and have persevered in, which is, to consider the object of obtaining relief from a corrupting and destructive grievance to us, as paramount to all party considerations. Let us convince all, that, as citizens, we know our rights, and will resolutely persevere in seeking, until we obtain and secure them for ourselves and those who are to succeed us in our avocations. Let us be resolved not to leave to our children the miserable heritage of competing for that heritage with felons.

There are still, I am sorry to say, those who think that the representations of Mechanics, as respects the injuries they receive from this system, are exaggerated. The want of investigation is the only reason I can assign for this. Is it possible that any man of reflection, the least acquainted with business, can doubt on this subject? Surely, no *merchant* can. If there is a merchant who hears me, (and I have no doubt there are many,) I would propound this simple query to him. If there were $100,000 worth of an article on sale in this market, (say 100,000 pounds of tea, at a dollar per pound,) and 10,000 pounds were smuggled into the market, and sold for 30 cents per pound, what effect would this have on the price of the quantity previously in the market? Would there not be a serious depreciation? Would it not be ruinous to many? If a circumstance like this would be injurious to the merchant, how much more is it to the mechanic, who suffers from legalized smuggling from Sing-Sing and Auburn Prisons? The merchant can execute an order for the article he has on hand in a day, and hence his loss may comparatively be on a declension of price, but trifling; but the mechanic requires time to execute orders. While he has his hands employed to accomplish his contract, the market becomes glutted with the article he has contracted to furnish at a price below his first cost; and this caused by convict labor. He completes his order. He looks around for another contract to keep his business progressing, and his workmen in employ; but alas! he finds that the man who has perhaps robbed him, or his neighbor, has superseded him by authority, working at 75 per cent. less than the regular mechanic, can hire his workmen. What is the necessary consequence? His journeymen must be discharged: his apprentices be idle. What a prospect for young mechanics nearly out of their apprenticeship! Idle, disheartened at the prospect ahead, they are too apt to become the dupes of experienced villains, whose knowledge of mechanics has been obtained in the prison, and whose morals, bad before, have been confirmed there. This is no idle imagining: witness the reiterated crimes and convictions of a large portion of the present tenants of our prisons, the daily calendar of our criminal courts, and the testimony of experienced officers presiding over them. Is this not a serious evil to mechanics, and through them to the whole community? And should not the whole community be aroused to check this monstrous—this growing evil?

This system has grown up in our age; let not the next age be cursed with it, nor let the reproach be cast upon us by the unborn thousands who are to come after us. Behold! this our fathers left us! We must, with one accord, demand speedy redress.

In short, Mr. Chairman, we must dispute every inch of ground with those harpies, alias contractors, agents, abetters, &c., of State Prison Monopoly, and continue to do so, until the last ballot box is presented to us for our suffrage. We must meet them at every corner, and on every point.

We have been asked—and the question will be reiterated in the legislative hall—what would you have done with the convicts? Let us sternly reply—it is the right of freemen to complain of grievances, and the duty of legislators to find means of redress.

The fathers of our revolution when they found aggression succeeded by aggression, did not stop to calculate what kind of government they would establish after achieving the independence of their country. No! they buckled on their armor, and tugged through a seven years' war, and relied on the wisdom of their countrymen, and a righteous Providence, to guide them in their subsequent course. Were they disappointed? Did they act indiscreetly? No: events proved they were correct. They fought—they conqured—and what an inheritance did they leave to their children! They formed a government that secured blessings to their descendants, and is the theme of praise and admiration throughout the civilized world. Let not, then, the stigma rest on this age, that our legislators know not what to do. If there are those who will not, or those who cannot, we must endeavor to send to our Legislature those who both can and will redress our wrongs.

NEW-YORK AMERICAN.

OCTOBER 25–31, 1834.

LITERARY NOTICES.

THE CONNEXION OF THE PHYSICAL SCIENCES—BY MRS. SOMERVILLE, 1vol. Phil. KEY & BIDDLE.

Man can no longer boast of having the domain of science to himself. Mrs. Somerville, Miss Martineau, and others, have boldly and successfully explored those paths heretofore denied to, or avoided by, women; and in the lessons they teach us of astronomy, of political economy, and now in the volume before us, of the connexion between all the physical sciences—they prove their title to the rank of competent masters. For a book, however, of general utility—and such a one might be made, we apprehend, on this subject—the volume before us assumes too great familiarity with, and progress in, science, on the part of readers. It is not intelligible to those who have only a passing knowledge of the general laws and phenomena of physical science.

THE HISTORY OF ENGLAND FROM THE EARLIEST TIMES TO THE YEAR 1588; by SIR JAS. MACKINTOSH, 1 vol. 8vo.: CAREY, LEA & BLANCHARD.—Death interrupted the eloquent writer of this history 'ere he had yet completed the volume now published. It was continued; and the work will be completed, it is promised, by those who, having possessed themselves thoroughly of the spirit in which Mackintosh had entered upon the work, have also possessed themselves of all the materials and notes prepared by him.

The edition we have now before us is in a handsome well printed 8vo., with double columns. A previous edition in 12mo., was, as our readers were at the time apprized, issued some time ago by the same publishers as a part of their re-publication of Dr. Lardner's Cyclopædia, for which work this history was originally undertaken by *Sir Jas. Mackintosh*.

THE SOUTHERN LITERARY MESSENGER, No. II. *Richmond, (Va.)* T. W. WHITE.—We like this second number, and are pleased to learn, that the public liked the first so well as to give encouragement to the proprietor to persevere. We, however, would prefer this periodical in a monthly, rather than in a semi-weekly form; and such we suspect would be the general view of those who desire to preserve their numbers.

There is variety and talent in both the prose and poetical contents. Too much space, however, is perhaps given to the extract from the Pilgrims of the Rhine, now no longer a new book.

The annexed letter from Mr. Wirt, written not a great while before his lamented death, will be eagerly read. It was written, as is stated, under the following circumstances:

"A young gentleman who is about to leave the walls of a University, and looks to the law as his profession, who is not related to or connected with Mr. WIRT, nor even acquainted with him, and knows him only as an ornament to his profession and his country is induced by the high estimate he has formed of his character, and the great confidence that might be reposed in any advice that he would give, to ask at his hand some instruction as to the course of study best to be pursued." Mr. Wirt replied thus:

Baltimore, December 20, 1833.

MY DEAR SIR: Your letter, dated "University of ——, December 12," was received on yesterday morning—and although it finds me extremely busy in preparing for the Supreme Court of the United States, I am so much pleased with its spirit, that I cannot reconcile it to myself to let it pass unanswered. If I were ever so well qualified to advise you, to which I do not pretend, but little good could be done by a single letter, and I have not time for more.—Knowing nothing of the peculiarities of your mental character, I can give no advice adapted to your peculiar case. I am persuaded that education may be so directed by a sagacious and skilful teacher, as to prune and repress those faculties of the pupil which are too prone to luxuriance, and to train and invigorate those which are disproportionately weak or slow; so as to create a just balance among the powers, and enable the mind to act with the highest effect of which it is capable. But it requires a previous acquaintance with the student, to ascertain the natural condition of his various powers, in order to know which requires the spur and which the rein. In some minds imagination overpowers and smothers all the other faculties: in others, reason, like a sturdy oak, throws all the rest into a sickly shade.—Some men have a morbid passion for the study of poetry—others, of mathematics, &c. &c. All this may be corrected by discipline, so far as it may be judicious to correct it. But the physician must understand the disease, and become acquainted with all the idiosyncracies of the patient, before he can prescribe. I have no advantage of this kind with regard to you; and to prescribe by conjecture, would require me to conjecture every possible case that *may* be yours, and to prescribe for each, which would call for a ponderous volume instead of a letter. I believe that in all sound minds the germ of all the faculties exists, and may, by skilful management be wooed into expansion; but they exist naturally, in different degrees of health and strength, and as this matter is generally left to the impulses of nature in each individual, the healthiest and strongest germs get the start—give impulse and direction to the efforts of each mind—stamp its character and shape its destiny. As education, therefore, now stands among us, each man must be his own preceptor in this respect, and by turning his eyes upon himself, and describing the comparative action of his own powers, discover which of them requires most tone—which, if any, less. We must take care, however, not to make an erroneous estimate of the relative value of the faculties, and thus commit the sad mistake of cultivating the showy at the expense of the solid. With these preliminary remarks, by way of explaining why I cannot be more particular in regard to your case, permit me, instead of chalking out a course of study by furnishing you with lists of books and the order in which they should be read, (and no list of books and course of study would be equally proper for all minds,) to close this letter with a few general remarks.

If your *spirit* be as stout and pure as your letter indicates, you require little advice beyond that which you will find within the walls of your University. A brave and pure spirit is worth more than '*half the battle*,' not only in preparing for life, but in all its conflicts. *Take it for granted, that there is no excellence without great labor.* No mere aspirations for eminence, however ardent, will do the business. Wishing, and sighing, and imagining, and dreaming of greatness, will never make you great. If you would get to the mountain's top on which the temple of fame stands, it will not do to *stand still*, looking, admiring, and wishing you were there. You must gird up your loins, and go to work with all the indomitable energy of Hannibal scaling the Alps.—Laborious study, and diligent observation of the world, are both indispensable to the attainment of eminence. By the former, you must make yourself master of all that is known of science and letters: by the latter, you must know *man*, at large, and particularly the character and genius of your own countrymen. You must cultivate assiduously the habits of *reading*, *thinking*, and *observing*. Understand your own language, grammatically, critically, thoroughly: learning its origin, or rather various origins, which you may learn from Johnson's and Webster's prefaces to their large dictionaries. Learn all that is delicate and beautiful, as well as strong, in the language, and master all its stores of opulence. You will find a rich mine of instruction in the splendid language of Burke. His diction is frequently magnificent; sometimes too gorgeous, I think, for a chaste and correct taste; but he will show you all the wealth of your language. You must, by ardent study and practice, acquire for yourself a *mastery* of the language, and be able both to speak and to write it, promptly, easily, elegantly, and with that variety of style which different subjects, different hearers, and different readers, are continually requiring—You must have such a command of it as to be able to adapt yourself, with intiutive quickness and ease, to every situation in which you may chance to be placed—and you will find no great difficulty in this, if you have the *copia verborum* and a correct taste. With this study of the language you must take care to unite the habits already mentioned—the diligent observation, of all that is passing around you, and *active*, *close*, and *useful thinking*. If you have access to Franklin's works, read them carefully, particularly his third volume, and you will know what I mean by *the habits of observing and thinking*. We cannot all be *Franklins*, it is true; but, by imitating his mental habits and unwearied industry, we may reach an eminence we should never otherwise attain. Nor would he have been the Franklin he was, if he had permitted himself to be discouraged by the reflection that we cannot all be *Newtons*. It is our business to make the most of our own talents and opportunities, and instead of discouraging ourselves by comparisons and imaginary impossibilities, to believe all things possible, as indeed almost all things are, to a spirit bravely and firmly resolved. Franklin was a fine model of *a practical man* as contradistinguished from a *visionary theorist*, as men of genius are very apt to be.—He was great in that greatest of all good qualities, *sound, strong, common sense*. A mere book-worm is a miserable driveller; and a mere genius, a thing of gossamer, fit only for the winds to sport with. Direct your intellectual efforts principally to the cultivation of the strong masculine qualities of the mind; Learn (I repeat it) *to think—think deeply, comprehensively, powerfully*—and learn the simple nervous language which is appropriate to that kind of thinking. Read the legal and political arguments of Chief Justice Marshall, and those of Alexander Hamilton, which are coming out. Read them, *study them;* and observe with what an omnipotent sweep of thought they range over the whole field of every subject they take in hand—and *that* with a scythe so ample, and so keen, that not a straw is left standing behind them. Brace yourself up to these great efforts. Strike for this giant character of mind, and leave prettiness and frivo.ity for triflers. There is nothing in your letter that suggests the necessity of this admonition; I make it merely with reference to that tendency to efflorescence which I have occasionally heard charged to Southern genius. It is perfectly consistent with these herculean habits of thinking, to be a laborious student, and to know all that books can teach. This extensive acquisition is necessary, not only to teach you how far science has advanced in every direction, and where the *terra incognita* begins, into which genius is to direct its future discoveries, but to teach you also the strength and the weakness of the human intellect—how far it is permitted us to go, and where the penetration of man is forced, by its own impotence and the nature of the subject, to give up the pursuit;—and when you have mastered all the past conquests of science, you will understand what Socrates meant by saying, that he knew only enough to be sure that *he knew nothing—nothing, compared with that illimitable tract that lies beyond the reach of our faculties*. You must never be satisfied with the surface of things: probe them to the bottom, and let nothing go till you understand it as thoroughly as your powers will enable you. Seize the moment of excited curiosity on any subject to solve your doubts; for if you let it pass, the desire may never return, and you may remain in ignorance. The habits which I have been recommending are not merely for college, but for life. Franklin's habits of constant and deep excogitation clung to him to his latest hour. Form these habits now; learn all that may be learned at your University, and bring all your acquisitions and your habits to the study of the law, which you say is to be your profession;—and when you come to this study, come resolved to master it—not to play in its shallows, but to sound its depths. There is no knowing what a mind greatly and firmly resolved, may achieve in this department of science, as well as every other. Resolve to be the first lawyer of your age, in the depth, extent, variety, and accuracy of your legal learning. Master the science of pleading—master Coke upon Littleton—and Coke's and Plowden's Reports—master Fearne on Contingent Remainders and Executory Devises, till you can sport and play familiarly with its most subtle distinctions. Lay your foundation deep, and broad, and strong, and you will find the superstructure comparatively light work. It is not by shrinking from the difficult parts of the science, but by courting them, grappling with them, and overcoming them, that a man rises to professional greatness. There is a deal of learning that is dry, dark, cold, revolting—but it is an old feudal castle, in perfect preservation, which the legal architect, who aspires to the first honors of his profession, will delight to explore, and learn all the uses to which its various parts used to be put: and he will the better understand, enjoy and relish the progressive improvements of the science in modern times. You must be a master in every branch of the science that belongs to your profession, the law of nature and of nations, the civil law, the law merchant,

the maritime law, &c., the chart and outline of all which you will see in Blackstone's Commentaries. Thus covered with the panoply of professional learning, a master of the pleadings, practice and cases, and at the same time a *great constitutional and philosophic lawyer*, you must keep way also, with the march of general science. Do you think this requiring too much? Look at Brougham, and see what man can do if well armed and well resolved. With a load of *professional duties* that would *of themselves*, have been appalling to the most of *our* countrymen, he *stood nevertheless, at the head of his party in the House of Commons*, and, *at the same time, set in motion and superintended various primary schools and various periodical works, the most instructive and useful that ever issued from the British press, to which he furnished, with his own pen some of the most masterly contributions*, and yet found time *not only to keep pace* with the progress of the *arts and sciences*, but *to keep at the head of those whose peculiar and exclusive occupations these arts and sciences were. There* is a model of *industry and usefulness* worthy of all your emulatinn. You must, indeed, be a great lawyer! but it will not do to be a mere lawyer—more especially as you are very properly turning your mind, also, to the political service of your country, and to the study and practice of eloquence. You must, therefore, be a political lawyer and historian; thoroughly versed in the constitution, and laws of your country, and fully acquainted with *all its statistics*, and the history of all the leading measures which have distinguished the several administrations. You must study the debates in Congress, and observe what have been the actual effects upon the country of the various measures that have been the most strenuously contested in their origin. You must be a master of the science of political economy, and especially of *financiering*, of which so few of our young countrymen know any thing. The habit of observing all that is passing, and thinking closely and deeply upon them, demands preeminently an attention to the political course of your country. But it is time to close this letter. You ask for instructions adapted to improvement in eloquence. This is a subject for a treatise, not for a letter. Cicero, however, has summed up the whole art in a few words; it is *apte—distincte—ornate—dicere*"—to speak *to the purpose*—to speak *clearly and distinctly*—to speak *gracefully*:—to be able *to speak to the purpose*, you must understand your subject and all that belongs to it:—and then your *thoughts and method* must be *claar in themselves* and *clearly and distinctly enunciated*:—and lastly, your voice, style, delivery and gesture, must be *graceful and delightfully impressive*. In relation to this subject, I would strenuously advise you to two things: *Compose much, and often, and carefully with reference to this same rule of "apte, distincte, ornate,"* and let your *conversation* have reference to the same objects. I do uot mean that you should be *elaborate and formal* in your ordinary conversation. Let it be *perfectly simple and natural*, but *always in good time*, (to speak as the musician,) and well enunciated.

With regard to the style of eloquence that you shall adopt, that must depend very much on your own taste and genius. You are not disposed, I presume, to be an humble imitator of any man? If you are, you may bid farewell to the hope of eminence in this walk. None are mere imitators to whom Nature has given original powers. The ape alone is content with mere imitations. If Nature has bestowed such a portion of the spirit of oratory as can advance you to a high rank in this walk, your manner *will be* your own. In what style of eloquence you are best fitted to excel, you, yourself, if destined to excellence, are the best judge. I can only tell you that the *florid and Asiatic style* is not the taste of the age. The *strong*, and even the *rugged and abrupt*, are far more successful. Bold propositions, boldly and briefly expressed—pithy sentences—nervous common sense—strong phrases—the *feliciter audax* both in language and conception—well compacted periods—sudden and strong masses of light—an apt adage in English or Latin—a keen sarcasm—a merciless personality—a mortal thrust—these are the beauties and deformities that now make a speaker the most interesting. A gentleman and a Christian will conform to the reigning taste so far only as his principles and habits of *decorum* will permit. The florid and Asiatic was never a good style either for a European or an American taste. We require that a man should *speak to the purpose* and *come to the point*—that he should *instruct and convince*. To do this, his mind must move with great strength and power: reason should be manifestly his master faculty—argument should predominate throughout; but these great points secured, wit and fancy may cast their lights around his path, provided the wit be courteous as well as brilliant, and the fancy chaste and modest. But they must be kept well in the back ground, for they are dangerous allies: and a man had better be without them, than to show them in front, or to show them too often.

But I am wearying you, my dear sir, as well as myself. If these few imperfect hints, on subjects so extended and diversified, can be of any service to you, I shall be gratified. They may, at least, convince you that your letter has interested me in your behalf, and that I shall be happy to hear of your future fame and prosperity. I offer you my respects, and tender the compliments of the season.

WM. WIRT.

How beautiful—how wise—how characteristic of the great and pure man who wrote it—is this letter. Alas! that his eloquent lips are closed—who so well teaches the road to eloquence, and that pure charcter removed from among us, when so few are left of public men to supply his place.

MOTHER'S MAGAZINE.—Edited by MRS. WHITTLESEY, and published New York, 146 Nassau street.—Of this work a friend says "although modest and unobtrusive it has already gained many friends and does in reality possess high claims to public notice. It has reached the ninth number of its second year—has upwards of 6,000 subscribers, and is republished in England by two presses. We think that mothers should become acquainted with this truly valuable work—it deserves well at their hands."

THE SELECT JOURNAL OF FOREIGN PERIODICAL LITERATURE.—No. VIII.—*Boston*, CHS. BOWEN.—This is truly a capital number, and well justifies its title of *Select* Journal.—The first article from the Foreign Quarterly Review on the Life and Character of *Duplessis Mornay*, does justice to one of the ablest and purest public men that ever lived—and whom the great renown of his great associate *Sully* has somewhat overshadowed. To Protestants, particularly, this notice of one who stood firmly to his faith, when his King deciding that "Paris was well worth a mass," changed his—is particularly interesting.

The second article from the Edinburgh Review, and the pen of Macaulay, is an admirable view of the Life and Career of William Pitt, Earl of Chatham. In does justice to his merits, and judges impartially his defects, his inconsistencies, his overbearing and intolerant love of power. It must startle the surviving members of the Pitt Club in England, to hear the son of Chatham, the anti-Gallican Champion, treated as he is in this paper, "as the most profuse and *incapable* of War Ministers."

But we have not time to dwell on each paper in this number. Passing to the Critical Notices, we extract from one on the late work of the eloquent *Abbé de La Mennais*, entitled "the Words of a Believer," the following rythmical fragment, on the pains of Exile.

"May God guide the poor exile. He goes wandering over the earth.

"I have passed through various countries: their inhabitants have seen me, and I have seen them; but we have not known each other. The exile is every where alone.

"When at the decline of day I saw the smoke of some cottage rise from the bosom of a valley, I said, 'Happy is he who returns at evening to his fireside and sets himself among those he loves!' The exile is every where alone.

"Whence come those clouds driven by the storm? It drives me along like them. But what matters it? The exile is every where alone.

"Those trees are noble, those flowers are beautiful; but they are not the flowers nor the trees of my country; to me they say nothing. The exile is every where alone.

"That stream flows gently over the meadow, but its murmur is not that which my childhood heard.—To me it recalls no remembrances. The exile is every where alone.

"Those songs are sweet; but the sorrows and the joys which they awake are not my sorrows nor my joys. The exile is every where alone.

"I have been asked, 'Why weepest thou?' but when I have told, no one wept; for no one understood me. The exile is every where alone.

"I have seen old men surrounded by children, as the olive by its branches, but none of these old men called me his son, none of those children called me his brother. The exile is every where alone.

"I have seen young girls smile, with a smile as pure as the dawn, on him they had chosen for a husband; but not one smiled on me. The exile is every where alone.

"I have seen young men, heart to heart, embrace each other as if they wished to have only one existence; but not one pressed my hand. The exile is every where alone.

"There are friends, wives, fathers, brothers, only in our own country. The exile is every where alone.

"Poor exile! cease to lament, every one is banished like thyself, every one beholds father mother, wife, friend, pass away and vanish.

"Our country is not here below; man seeks for it here in vain, that which he mistakes for it is only a resting-place for a night.

"God guide the poor exile! He goes wandering over the earth."

NOVELLETTS OF A TRAVELLER. Edited by H. J. NOTT. 2 vols. New York: *Harper & Brothers.*—The least clever and agreeable part of this book is the commencement,—the Biography of *Thomas Singularity*, Journeyman Printer. Its tone and taste are bad, and its humor elaborate. In the tales and sketches, however, there is more freedom of style, more incident and interesting adventure. The Andalusian Rope-dancer is among the best, in our judgment; though to say truth, so far as Andalusia is concerned, it might have been written in New York or Charleston, without ever having crossed "the waste of waters;" for it lacks that vivid description of scenery, which impresses the reader at once with the conviction, that the author writes from the eye, and not from fancy.

PICTURES OF PRIVATE LIFE. Second Series; by SARAH STICKNEY. Philadelphia: *Key & Biddle.*—If it be a just criticism, which we are not however prepared to admit, on the first series of these pictures, that the religious sentiments they contain are not sufficiently decided, none such can be advanced against the two pictures which make up this volume. Doing good and fulfilling our duty in obedience "to the will of God," is the prominent motive of action, illustrated with delightful talent, in the story of the Misanthrope. The character of Agnes Forrester is charming, and in a great degree original, though we are sure not without a parallel,—we had almost said many a parallel, but that the circumstances under which her character is developed cannot often occur—in real life. The sacrifice of woman's love and dearest earthly hopes to the conviction that the man of her choice takes such views of his duties, obligations and destiny, as are utterly irreconcileable with her own sense of right,—and the overcoming of that fond illusion so natural and so tempting to woman, that love for her may accomplish a reform in the beloved object which all the higher motives of duty to God and man failed of effecting,—are the leading points illustrated, and powerfully illustrated, in the story of the Misanthrope. We commend these Pictures to our readers.

FOREIGN INTELLIGENCE.

LATER INTELLIGENCE FROM EUROPE.—We announced briefly yesterday the arrival of the *Hannibal* from London, with papers to the 26th. We now present some extracts. The remarkable item of intelligence by this ship, is the adoption by the Spanish Cortes, of a bill of rights, which will be found in our columns. It is, we fear, in advance of the intelligence and political knowledge of the nation, and therefore, not likely to be of any great practical benefit at present.

The great Dinner at Edinburgh to Earl Grey, was given on the 15th. No hall in the city was thought

adequate to the company that would assemble on the occasion, so that a building was erected for the express purpose, on the Calton Hill, and so designed as at once to accommodate the largest number, and to render the voice of the speakers audible throughout the whole circuit. It was a very splendid affair. The number present was about 2000.

The Emperor Nicholas is said to have responded to the demand of the Porte for assistance against Mehemet Ali, that his engagement to offer him aid, was only in cases where he was attacked, and not where he was the aggressor.

Another fire had occurred in Moscow by which 200 houses had been destroyed.

THE CHOLERA prevails with great fatality in many parts of Europe and particularly in Sweden. Up to the 19th of September there had been 3179 cases and 1276 deaths of that disease in Stockholm, containing a population of less than 80,000.

LONDON, SATURDAY, SEPT. 20.—The Paris papers are received. The Moniteur gives the following official intelligence received by the French Government from the Bayonne: "A telegraphic despatch of the 16th states, that the Guipuscoans had attempted an attack on Tolosa, but without success.—They were on the 15th in the direction of the passage of Oyarzun. Zumalacarreguy was marching against him with Lorenzo and Figueira. The Junta is at Etchalar. Don Carlos has remained at Biscay." The attacks of the Carlists against Begara, Viana, and Tolosa, indicate a change in their position. Tolosa is an important place, and has a strong garrison; some particulars respecting the attack upon it are, therefore, extremely desirable.

Arana, formerly the companion in arms of Rodil, in Peru, was shot by him, in Bilboa, on the 16th instant, together with the Major Domo of the Marquis de Valespina, and the Secretary of the Junta (Dos los Aganos.) They are entrapped by the Spanish frigate Pearla. Rodil has burnt the Duke of Granada's palace to the ground, in revenge for the Duchess of Granada having celebrated Don Carlos' return.

In the Chamber of Procuradores, on the 9th inst. General Burton addressed himself to the President of the Council of Ministers, in the hope that he would communicate to the Chambers the real state of affairs respecting the Civil War in the Northern Provinces.

M. Martinez de la Rosa replied:

"In the northern provinces, more than 40,000 men are on foot, of which number 20,000 are destined to guard the fortified towns, the coasts, and other parts. In the immense plains of Castile are 15,000 men, so that we cannot charge them with inertness. What we want is the means, the pecuniary resources for greater exertion. The real plan of the war should be to occupy all the military points with sufficient forces, and thus to contract the space in which the insurgents act, to force them to lay down their arms. But for this purpose numbers are required; and the equipment, the arming, and the support of the troops, form the largest items in governmental expenses.—We are compelled to regulate our movements by the state of our funds, and we have the consciousness of having discharged our duty."

Spanish Bill of Rights.—The following is the Petition, as approved in the Estate, and read to the Queen on the 11th inst.:

"Petition on the Fundamental Rights of the Spaniards, as approved by the Estate of Procuradores at its last Sittings.

The Procuradores of the kingdom pray your Majesty that you will be pleased to sanction as fundamental rights those which are contained in the following articles:

Article 1. The law protects and consolidates individual liberty.

2 All Spaniards may publish their thoughts by means of the press, without previous censorship; but subject to the laws which repress abuses.

3 No Spaniard can be prosecuted, impressed, arrested, or removed from his dwelling place, except under the circumstances provided for, in the manner prescribed by the law.

4 The law has no retroactive effect, and no Spaniard shall be tried by commissions, but by the tribunals by law established prior to the perpetration of the offence. The same rule applies to civil transactions.

5 The house of no Spaniard can be violated, except under the circumstances which are or may be ordained by law.

6 All Spaniards are equal before the law.

7 Spaniards are equally admissible to all public employments, and all are equally bound to take upon themselves the burden of public service.

8 All Spaniards are bound to pay the taxes voted by the Cortes.

9 Property is inviolable, but is nevertheless subject—

"1. To the obligation of being ceded to the State when so required for any object of public utility, a competent indemnification being always previously awarded by the judgment of impartial men.

2. To penalties imposed by law, and to damages in virtue of sentences legally pronounced—confiscation of property is abolished."

10 The authority of a public functionary who commits any aggression on individual liberty or personal security or property, is responsible conformably to law.

11 The Secretaries of State are responsible for infractions of the fundamental laws, and for the crimes of treason and official extortion.

12 A national guard shall be established for the preservation of public order and the mantenance of the laws. Its organization to be the subject of a law."

The Madrid Correspondent of the Morning Herald, dated the 11th instant, represents the enhanced fears of the French Ambassador, (M. De Rayneval) that a new crisis would occur from the hourly increasing strength of the Democratic party. He, M. De Rayneval stated further, that the insurrection in the Northern Provinces was beginning to cause serious alarm to the Government, and mentioned a report that a rising had taken place in Galacia; that portions of Aragon and Catalonia were in revolt, and that the Urban Guard of Barcelona had refused to march. He concludes by averring that the Treasury was completely exhausted.

The Spanish Ministers have ordered a quantity of waste lands throughout the kingdom to be sold.

A conspiracy has been discovered in the neighborhood of Malaga, and several districts round Carthagena, where an attempt at insurrection was made, and 500 Carlists turned out.

[*From the Messager.*]

PARIS, SEPT. 18.—The Renovateur makes the following reflections on the report of the majority of the Finance Committee to the Chamber of Procuradores:

"A declaration for the possibility of Spain to pay all its debts, the homage paid to the Revolutionary principle by annihilating the Royal Loans, and recognize those of the Cortes. There is in this report more than a bankruptcy—there is an entire revolution. The men who are the authors of this report have calculated all the effects of it, and seem determined not to make any concession. We are assured that the Secretary of the Committee has written to Paris—'Though the French Government were to fall on its knees before us, we never will acknowledge the loans contracted since the year 1823 by Ferdinand VII."

A French Journal is going to be published at Madrid under the title of Courrier du Nord. The Royal License has been given to M. Morat.

His Majesty's brig Espoir, arrived at Falmouth, on Wednesday, from Lisbon, whence she sailed on the 8th. The Minister of Finance has made his report, in which very flattering prospects to the trade of Portugal are held out, and it is upon the whole calculated to inspire confidence. The critical state of the Regent's health has, of necessity, given greater urgency to the consideration of the young Queen's marriage, which now becomes a question of the first importance.

This subject is accordingly attracting great attention, and was at the date of these accounts under deliberation in the Council, where it was expected that the matter would be immediately concluded with the young Duke of Leuchtenberg, the Empress's brother, whose pretensions appear to have received more general favor than any other candidate for the honor of Donna Maria's hand.

The protest of Don Miguel against the treaty which he signed previously to his leaving Portugal, is held to be an authentic document; and consequently no payment will be made to him on account of the pension to which he would have been entitled if he had performed his part of the treaty.

LATER FROM EUROPE.—By the packet ship *Independence*, Capt. Nye, from Liverpool, there are papers of the 23d, from London.

The Spanish "bill of rights" had received the sanction of the Cortes, and only waited for that of the Queen, which it will not be deemed prudent to withhold.

The *guerilla* warfare between the partisans of *Don Carlos* and the Queen, assumes no more certainty, or decisive character, than heretofore.

The report of the Finance Committee still engages much attention in the French papers, and when the grounds of the decision are considered, that report will be found a very remarkable document. A short extract which we published from the Renovateur of Saturday, was sufficient to direct public attention to the main principles of the resolution adopted by the majority of the committee. They do not enter into the financial ability of Spain to pay the debt, but they deny its validity; they do not, by refusing to pay the loans contracted by Ferdinand, confess to an act of bankruptcy; they proudly say they never borrowed the money, that they do not owe it, and, therefore, that they will not pay it.—[Courier.]

[*From the Alexandria Phenix.*]

LATEST FROM THE WEST INDIES—*Dreadful Hurricane at Dominica.*—By the Brig *Edward*, Capt. D. B. Smith, arrived at this port from Barbadoes, whence she sailed on the 5th, we have received files of Barbadoes papers to that date.

The Islands generally continued quiet, but the LABORERS were very lazy, and not inclined to work when they could avoid it.

These papers give us an account of a most dreadful and destructive hurricane, which occurred on the night of the 20th September, on the Island of Dominica. The works on two-thirds of the principal sugar estates were levelled to the ground, the canes blown flat to the earth, and in many instances buried in the mud and blown from the soil; every description of provisions aboveground completely swept away, and the face of the country, which exhibited before the utmost luxuriance of vegetation, changed to the appearance of a general conflagration having passed over it. There are not 50,000 feet of lumber in the island, nor 100,000 shingles. Every vessel that was in the roads at the time shared the same fate, viz: the sloops Dolphin and Antelope, and a small sloop from Montserrat. An American schooner was driven on shore, bottom up, on the south end of the Island, and opposite to Martinique. The offices, barracks and Hospital at Morne Bruce, are mostly blown down, and those standing, in such a dilapidated state as to make them unsafe to occupy. Every building on the garrison has either been crushed to ruins or has suffered considerably—the spacious Hospital, lately built on an improved plan, has been partly unroofed, and the Barrack Master's and Adjutant's offices have been entirely destroyed, and it was with great difficulty that the troops escaped without loss of life. The left side of the Govern ment House was blown down, and the other parts of the building partially damaged. The office of the Auxiliary Commissioners of Compensation, adjoining those premises, has been materially injured, and a great many of their original documents destroyed.—The new Commissariat building—the Custom-House, the Court-House—Market-House—the Jail, and the Protestant Church, and almost every other building in town, have suffered considerable injury from the effects of the hurricane. The Mercantile Houses of Messrs. Thomas Laing & Co., Messrs. James Garraway & Co., and Thomas W. Doyle, Esq. on account of their proximity to sea, have also experienced most heavy losses.

Throughout the whole island, and on every estate, the most dreadful destruction took place, the full account of which would fill a column.

The northern part of Martinique has suffered severely, and many vessels have been lost. St. Pierre did not escape, and considerable loss has been sustained at Fort Royal.

Great fears were entertained that the people of Dominica would suffer for the want of food, and measures were taken at Barbadoes and elsewhere to send supplies to the suffering inhabitants.

All accounts go to show that this has been one of the most destructive hurricanes ever experienced in the West Indies.

SUMMARY.

LITERARY NOTICE.—It is with satisfaction we announce that *John P. Haven*, 148 Nassau street, has in press, and will publish soon, *A Sketch of Chinese History, ancient and modern:* comprising a retrospect of the foreign intercourse and trade with China, illustrated by a new and corrected map of the Empire, by the Rev. CHARLES GUTZLAFF, now and for many

years past a resident in that country. A handsome portrait of Gutzlaff will accompany the work.

Those who read *Gutzlaff's* first publication, will look eagerly for that now promised.

The Chinese Lady will be exhibited at house No. 8 Park place, as soon as the necessary Furniture is landed from the Washington.—[Jour. Com.]

☞ We are requested to say that passengers for Philadelphia will leave New York in the Rail Road Line on Monday, 27th inst. at 7 o'clock, A. M.—The 6 and 10 o'clock line, after this date, will be discontinued for the season.

Steamboat Novelty Sunk.—This boat, while coming down from Albany, on Thursday night, in tow of the steamboat Oliver Ellsworth, struck a hammock on the Overslaugh amidship, and broke her back, and at high tide the water is about four feet in her cabin. The N. had a quantity of Nott's stoves on freight, but no passengers. She remained in the above situation on Saturday when the De Witt Clinton passed, but it is probable that she will be raised soon. The O. E. was without her tow-boats, having been chartered to bring the Novelty to this city—but when approaching the Overslaugh, it is supposed that she found she could not carry her over it, and intended to return with her to Albany—while winding to do so, the Novelty struck as above stated.]

[*From the Newbern Spectator, of Oct.* 19.]

A gentleman informs us that eight families of his acquaintance, in an adjoining county, are making active preparation to emigrate to the West. Poor Carolina! dearly loved as you are by your sons, the strong ties of affection must yield to the apathy and mismanagement which portend nothing but poverty and ruin.

The new Cotton crop begins to come in more rapidly. About one hundred bales have been sold within the week, at from 11 3.3 to 13 cents.

[*From the Nashville Republican of* 14*th inst.*]

The Hermitage Burnt.—Yesterday evening about 4 o'clock, the roof of the Hermitage was discovered to be on fire, and attempts to arrest the progress of the flames proving unavailing, the entire edifice, with the exception of the room attached to the northern end, and used as a dining room, was in a few hours consumed. The valuable furniture in the lower story was fortunately saved, though much broken and otherwise injured in getting it out. That in the second story was, we understand, chiefly destroyed. The fire is supposed to have been communicated to the roof by the falling of a spark from one of the chimneys; and there being at the time a light breeze from the North West, the progress of the flames was proportionably rapid. The numerous and valuable private papers of the President were probably all preserved.

We need not add that the event has occasioned to this community deep and universal regret.

Perilous Balloon Ascension in Charleston S. C.—The Charleston Courier of 23d instant, (Thursday last) states that a Mr. *Elliott* of Baltimore ascended from Charleston on the afternoon of 22nd, and was borne forthwith out to sea. Intense anxiety was felt for his safety, which in a Postscript is thus announced.

Postscript.—12 o'clock, Midnight.—We are happy to have it in our power to say, that Mr. Elliott, the Æronaut, has just reached the city. He informs us that he ascended to the height of between 31.2 and 4 miles, and was in the air about one hour and three quarters, having been unable to descend earlier on account of some difficulty in opening the valve of the Balloon. When he descended, it was perfectly dark, and he alighted in the water, 10 or 12 miles out side of the Bar, where he remained about half an hour, supported by the Balloon, when a skiff from the pilot boat *Cora*, Capt. Aldert, came to his relief, extricated him from his very perilous situation, and took him on board the boat, from which he was taken, in the vicinity of Sullivan's Island, by the steam boat *Etiwan*, Captain Sassard, which boat (much to the credit of Capt. S. and several gentlemen who took a very warm interest in the fate of the fearless Æronant) had been dispatched to his assistance at a late hour of the night. Much anxiety was felt by our citizens, for Mr. Elliott's safety, and we feel assured that his safe return will be hailed with high gratification. We understand that it is his intention to make another ascension, and we hope that the liberality of our citizens on the present occasion, will warrant him in repeating the dangerous experiment. We are glad to announce that the Balloon was saved, having sustained but slight injury.

The Editor of the St. Louis Republican, says it is very evident that a "searching operation" is going on somewhere in the Post Office Department, for he had just received several papers dated in December 1833"—only ten months old!

Lightning.—Mr. Randall, pilot of the steamboat Michigan, was instantly killed by lightning, at St. Louis, Mo. on the 8th instant. The unfortunate man was standing in the street at the time, near the Missouri Hotel.—[Courier.]

Quebec, Friday, Oct. 17.—We experienced today one of the dark days which occur every two or three years, about the fall of the year. It was perhaps more remarkably dark than any for a number of years past. The atmosphere was almost perfectly calm, and the thermometer at about 50 degrees of Fahrenheit. There was very little haze in the southern hemisphere; but particularly over head, and to the north, the sky was nearly obscured by thick clouds of a dark color, in motion from west to east, which, as they grow less dense, gave the whole air a dark orange tinge. From half past 2 to 5 o'clock, it was necessary to light candles to transact any ordinary business, and there was not more light than exactly at the first dawn of day. About four o'clock, the dark orange of the atmosphere began to assume a white straw color. There had been some rain in the interval, and the thermometer had fallen four or five degrees, but rose again to fifty. The clouds over head moved more rapidly, but still from west to east while a haze prevailed along the earth, with the same dead calm, and occasional rain. A light breeze sprang up from the south west, and light began to increase, until it resumed its usual force on a cloudy day, at a quarter past five.

It seems difficult to account for these appearances. The whole upper strata only of the atmosphere are suddenly much condensed, and surcharged with vapor and smoke, while along the earth itself you can see the distant mountains. It is also remarkable that when such days occur while snow lies on the ground, it is found covered with a kind of dust or ashes; and hence they are supposed to be produced, in some measure, by the smoke of fires driven eastward, and occupying a fixed spot during the calm weather.

We learn that the President of the United States has appointed Henry D. Gilpin, Esq. (at present District Attorney for the Eastern District of Pennsylvania) Governor of the Territory of Michigan—in the stead of Gen. Porter, Esq., deceased.—[U. S. Gaz.]

Massacre.—A letter from Batavia (East Indies) dated April 23d, announces the death of Captain Philip F. Livingston, formerly an officer of the U. S. Navy, by the hand of violence, together with six other persons on board his Ship, the Matilda of Batavia, bound from that port to some other place in the East, with a cargo of salt, and $250,000 in specie belong to the Dutch government. The murderers succeeded in their object, which was to get possession of the money, and having scuttled the vessel, which soon after sunk, they landed on a neighboring shore. Captain Livingston was a son of Judge William Livingston, of Kings county,—was born at Flatbush, L. I., and was about 48 years of age. The Matilda was owned by Messrs. Payne, Sticker & Co., of Batavia.

Jewish Literature.—That any one who has studied the poetry, history, and philosophy of the Hebrews, even merely as specimens of composition, should lightly esteem them, is impossible. In lyric flow and fire, in crushing force, in majesty that seems still to echo the awful sounds once heard beneath the thundering clouds of Sinai, the poetry of the ancient Scriptures is the most superb that ever burned within the breast of man. The picturesque simplicity of their narrative gives an equal charm to the historical books. Vigour, beauty, sententiousness, variety, enrich and adorn the ethical parts of the collection. Nor is that seeming artlessness, which constitutes a principal charm of these writings, either naturally incompatible with the observance of certain rules, or actually uncontrolled by such as denote an intimate acquaintance with the management of style.—[From an Article on Literature, by Sir D. K. Sandford, in "Popular Encyclopædia."]

The Germans.—The Germans are only copyists in manners, and often very bad copyists; but they are at least a moral people; and their national literature, which is rich, because it contains quantities of pure gold, though mixed up with masses of dross, has generally a moral and religious tendency; and of this their manners must always, to a certain extent, bear the impress. German women, too, are in general highly educated and accomplished; and young unmarried women mix in society, which thus acquires that tone of elegance their presence can alone confer. I shall give you a lecture on German literature before you enter upon your travels; at present I can only warn you against believing any thing that the Germans themselves, or English liberals and reviewers, tell you on the subject. Credit not one word of what they say about *der Meister*, as they call Goethe; and never open one of his books unless you want a good nap. *Faust*, distinguished for nothing but very bad taste, is but a dressing up of some fifty old tales, stories, and dramas, on the same subject: it is constantly appealed to as something very fine, but you never hear passages quoted from memory, nor does it contain a single one worth recollecting. We have a Faust in English, either by Marlow, Haywood, or one of the other old masters, that is worth all the German Fausts a hundred times over. Schiller is the only national poet of Germany; and high as he deservedly ranks, he is still very much overrated. Herder, indeed, is the only writer of eminence that is not overrated.—[Frazer's Magazine.]

Turkish Manufactures.—The government has dedicated to the encouragement of industry, its first moments of tranquility. A manufactory of *fez* (red woollen caps worn by the Turks) has been working at Constantinople for the last 18 months. The supply of these caps, at least of the qualities for the use of the Government, was obtained from the manufactories of Tunis. The French and the Italians never could attain the perfection of the Tuisians. At the request of the Sultan, the Bey sent over a number of workmen, and manufacturing was done at Constantinople under the direction of Eumer Lufti, but he soon perceived that the men worked unwillingly, and did all in their power to frustrate his endeavors, well aware that his country was about to lose its monopoly. They were, in consequence, soon discharged: but the first notions having been learned by natives who were placed with them at the beginning, and Eumer Lufti having paid the greatest attention to the whole process, 4500 caps are now made monthly, and no doubt in a short time the quantity will be 15,000 in the like time. These caps, not inferior to those from Tunis, especially in respect to the solidity and colour, things extremely difficult to arrive at, stand the government in much less, notwithstanding the great expense attendant upon the setting to work a new establishment. Too much praise cannot be given to Eumer Lufti for his ability and perseverance. This manufactory will be very useful as a means of employment to the poor classes. The government has some idea of establishing a woollen cloth manufactory, which would have been a source of great economy, but the project has been abandoned.—[Ottoman Moniteur.]

Mortality in Paris.—The general report of the labors of the Council of Salubrity for 1829, has just been sent to the Academy. The chapter relative to the mortality in Paris gives the following results:—In the course of the year, 1148 males and 1448 females died of pulmonary consumption. It is from the age of 10 to 50 that this disease is most destructive. It is to be remarked that nearly one fourth more females than males died from this disease, and the proportion is greater still in 1827 and 1828. Inflamation of the chest, which may be said to be the pulmonary consumption of old people, destroyed 957 males and 1132 females. Only 194 males died from anuerism of the heart, while 396 females died. This difference is attributed by the Council of Salubrity, in a great measure, to the injurious pressure of stays. Schirrus has destroyed 419 females, and only 105 males. Inflamation of the stomach has been fatal to 840 males and 1103 females; inflamation of the bowels, to 1171 males, and 1103 females: those who died from those two latter diseases have been principally under seven years of age. Of convulsions, 664 boys, and 746 girls have died, generally before attaining their fifth year. Inflamation of the lungs has destroyed 863 males and 872 females. Apoplexy counts 542 males and 424 female victims, almost all between 30 and 85 years of age. Four hundred and nine females died of inflamation of the peritoneum, and only 125 males; the females who died from this disease were generally between the age of 20 and 35; the males from 25 to 45.

Extract of a letter to the Editor, dated Rochester, Monday, October 20, 7 P. M.

FIRE AT ROCHESTER.—I arrived here at five this afternoon from Bath. At half past six I heard the alarm fire bell, and on going into the street I saw the flames issuing from a large new four story brick store No. — Exchange street, occupied by Messrs. E. F. & A. G. Brown, wholesale grocers. The engines were on the ground in a very few minutes, but for want of long ladders they were unable to play into the interior of the third and fourth stories, in consequence of which the building and most of its contents were entirely destroyed. The fire commenced, I believe, in the third story, and but for the want of long ladders in time, might have been extinguished with partial damage. No other building was injured, except the one adjoining on the south, the roof of which was demolished by the falling of the gable end and chimnies. Several persons were in great danger, at the time the heavy front cornice fell and slid down on the ladders to the pavement. I am as yet unable to ascertain if any are seriously injured.

I have witnessed many an appalling fire in New York, but have never yet seen one of a single building so brilliant. The upper stories were filled with light goods, wooden ware, &c. &c. There were one or two explosions, probably of spirits or small parcels of powder, which for a moment seemed to check the firemen; but they returned again in a few minutes to the charge. The falling of the immense brick wall upon the frail shingle roof of the adjoining building, upon which were several firemen with a hose and pipe, was indeed a moment of intense feeling and interest. It seemed impossible that all could escape. One universal shudder went through the crowd which thronged the street. For a moment all was silence; when one man was seen a moment after to arise from the roof near that part which went down, and make his way on to the next building. "Is any one hurt," ran through the crowd. No one could answer. It is believed that all escaped.

The property was insured I understand for $10,000—the loss probably much greater.

Accident.—The Steamboat Erie, on her passage down from Albany yesterday, when near Newburg, broke one of her shafts with other damage. She reached the city with one wheel.—[ibid.]

Destructive Fire.—The large Store-houses on the wharf at Rhienbeck, Dutchess county, New York, owned by Capt. Bergh, and M. T. Schryver, Esq. containing large quantities of grain and goods, were totally destroyed by fire yesterday at 11 o'clock, A. M. Fire supposed to have been communicated by sparks from the chimney of a Steamboat, in stopping at the wharf. Loss about $10,000.—[Daily Adv.]

Animal Sagacity.—About 3 o'clock on Thursday morning, a grocery store in Grand street, between Eldridge and Allen, took fire inside, a clerk, and large watch dog sleeping therein. The clerk would inevitably have been burnt to death, or suffocated but for the sagacity of the dog, who jumped upon his bed, put his paws upon his body, and pulled him by the shoulder, until he aroused him from his almost death slumbers. He then rushed out of the store, followed by the dog, and the arrival of help soon extinguished the fire—but for the dog all would probably have perished.

Shipwreck.—The fine packet schooner Norfolk, Osborn, from Norfolk for New York, went ashore at Great Egg Harbor on Sunday morning last, about 6 o'clock, and will be lost. Cargo supposed worth about $7000, partly landed. The materials and cargo saved will be sold on Monday, 27th inst., unless otherwise ordered by the persons interested.

A Luxury.—We were yesterday permitted to examine a segar, presented by the commander of an English ship to the master of one of our whalemen, just returned from the Pacific, as a memorial of the imitative power of our eastern brethren. This segar was taken from a large parcel which the Briton had purchased of the Yankee, with intent to solace himself occasionally with a glorious puff of the pure Indian weed; and the disappointment of Mr. Bull's nose, so sharply bent on being regaled with the true Virginia fragrance, at perceiving an odor exceedingly unlike that of the anticipated tobacco, may be readily imagined. Like the sample now shown us, his whole stock of smoke tubes consisted of segar shaped rolls of *oak leaves* and *skunk cabbage*, without even a pinch of snuff intermixed, to give them a taint.—[Nantucket Enquiror.]

John Swift, Esq., was on Tuesday, unanimously re-elected Mayor of Philadelphia by the Common Council of that city.—[Jour. Com.]

Prince Puckler Muskau.—It appears by the last foreign papers, that this Prince, who has been for some time expected to arrive in this country, has been engaged in a duel. The Prince engaged a surgeon at Liege, to whom, on their way to the battle ground he explained as follows:—"In one of my romances I made use of the ordinary means of giving interest to the scenes of my drama, and represented my hero as giving himself up to violent passions, and all those irregularities which are their inevitable consequences. I gave him a name chosen at venture, for you know in every fiction the principal actor must necessarily be invested with one. By one of those strange perversities of chance which cannot be foreseen, there happened to be in the north a person of great consideration bearing precisely the same name, and into whose hands my work fell. He took what was a mere production of my imagination for an intended and outrageous personal insult. I was then at Paris. Severe complaints were made to the diplomatic agents there, which at length reached me. I gave every possible explanation in my power; but they were not sufficient to satisfy the susceptibility of the party offended, and a reparation by way of arms was demanded and granted. For this purpose we are now on our way to A——, where I shall see my adversary for the first and probably for the only time in my life." They at length arrived at the place of rendezvous. The adversary was beforehand with him. He was a man of noble carriage, and of a serious but prepossessing exterior. All the conditions of the meeting had been regulated beforehand. The combatants were kept at a distance, and only approached in order to exchange shots. Not a word, not a look, established the smallest communication between them. At the given signal they advanced towards each other, and at the instant which had been previously agreed on, the two pistols were simultaneously discharged. One of the champions was wounded in the throat—it was the Prince's adversary—he immediately received the eager attentions which his wound required—fortunately it was slight. A declaration previously agreed on, and expressing reciprocal satisfaction, was immediately exchanged, and the parties separated with the cold and silent ceremonial which had prevailed throughout the meeting. The noble duellists, each of whom had travelled more than one hundred leagues, in conformity with a ridiculous custom which is called a point of honor, returned to their respective homes, one to Paris, the other to Berlin, doubtless not a little pleased to find themselves alive after this little trial at mutual destruction."

M. Armand Carrel, the proscribed editor of the National at Paris, on his escape to Southampton, in England, being asked for his passport, replied that he had none. When he told his name, the authorities and bystanders declaired it was a sufficient passport for him all over England.—[Star.]

A ship for the conveyance of three hundred young women from Dublin and Cork to Sydney, New South Wales, will sail from Dublin as soon as possible. This ship has been taken up by the government in London, and the selection of females has been confined to committees appointed for that purpose in Dublin and Cork. J. D. Pinnock, Esq. of the Colonial office, will proceed to both these cities to superintend the final arrangements for the departure of the emigrants.

A meeting was held in Calcutta on the 5th of April, to consider a suitable manner of commemorating the late Rajah Rammohun Roy. The Rajah's family have performed his funeral obsequies there according to the Hindoo ritual.

Egyptian Cotton Manufactures.—It is now nearly fourteen years since the first attempt was made to introduce the cotton manufacture into Egypt; and the wisdom of the Pasha's policy may be estimated with tolerable accuracy by the result. At present most of the mills are in ruins, and immense heaps of machinery, no longer employed, are covered with rust, and mouldering to decay. Nevertheless, Egypt is haunted by a class of foreign mechanics and adventurers, who adduce the example of England, to prove to the misled Pasha, that a change of machinery and management will quickly convert his mills into a lucrative source of revenue: indeed, I believe they have even gone so far as to allude to the possibility of successfully competing with Manchester and Glasgow. The pasha, in all doubtful matters, generally embraces the most flattering side; for, in his manufacturing schemes, he appears to think nothing beyond his powers of creation. His highness having been informed that coal is to be found in large quantities in Syria, has in consequence adopted the determination of making his own steam engines, to drive an immense number of cotton mills. But these are not to be set up in Egypt, which, he has at length discovered, can never be converted into a manufacturing country. His recent conquests are next to taste of the bitterness of a speculating and cotton-spinning despotism; which, in lieu of encouraging the efforts of private industry, invades the province of the manufacturer and the merchant, and is justly punished with disappointment and chagrin. No reasonable man, therefore, can apprehend any lasting competition from a people ignorant in the extreme, and morally depressed to the lowest depths to which humanity can sink. The peasants are enabled to exist merely that they may labor for the for the government; and, while this continues to be the case, they can never excel. There is only one man in Egypt interested in the success of the manufactures. The Europeans engaged in the mills are, for the most part, unprincipled adventurers, who find their advantage in the ignorance and dilatoriness of the Turks. Receiving their pay, they are content to allow affairs to proceed in their natural course. One of these mechanics, who has resided many years in the country where he is nearly naturalized, has done much for the Pasha and his own friends in Europe, exercising the important functions of engineer and contractor greatly to the satisfaction of his employer; who has discovered the novel method of estimating the qualities of machinery by the exorbitance of its price.—From what has been said on the state of the cotton manufacture in Egypt, and the insurmountable obstacles to its success, arising from the nature of the government, the climate, and the morals of the people, it will be abundantly clear that the Pasha can never become a formidable rival, in that particular branch of industry, even to the least advanced of European nations. It is impossible, however, to regard without indignation the unhappy disposition of a prince, who having once suffered himself to be made the dupe of designing individuals, is too proud to abandon his chimerical projects; while his unfortunate subjects, tormented by his caprice, and ground down by his despotism, are deprived of the miserable consolation of reflecting that the labor, however unproductive to themselves, is advantageous to their master. In closing my remarks on this subject, I shall venture to make one suggestion to the manufacturers of Great Britain; all yarns intended for the Levant should be more twisted than is considered necessary in the European markets. The natives of Syria and Constantinople make use of a species of shirting, woven of hard twisted thread, which gives the fabric a crisp appearance. For this purpose they would consume a large quantity of British yarn, were it spun in the mule, in a contrary direction to that in general practice in our mules; and the quantity consumed would be still more considerable were the English manufacturer to give his article twice the ordinary degree of torsion; the direction of the twist being immaterial."—[St. John's Travels.]

Tea, black and green.—Among the evidence taken by a committee of the House of Commons to ascertain whether it is practicable to distinguish accurately the different denominations of tea, is contained information relating to the tea plant differing from accounts heretofore given. According to the evidence of the Company's officers, the tea plant in China has two distinct varieties, if not species, which respectively yield the *black* and the *green* teas The tree, as is well known, is an evergreen, growing to the height of five or six feet. The pickings of the leaves begin in May, when the plant is in full leaf, but ready to shoot out other leaves.

In the *black* tea plant, the first shoot on the bud coming out, then covered with hair, forms the fine *flowery pekoe*. A few days' more growth makes the hair begin to fall off; the leaf then expands, and becomes the *black leafed pekoe*. Some young shoots have fleshier and finer leaves, which makes the *souchong*. The next best leaves make the *campoi*, the next *congou*, and the refuse and inferior leaves the *bohea*. These are the states in which the black teas are collected by the tea farmers,

The varieties of green tea appear to originate, not from the stages of picking, like the black, but partly from difference of treatment and manipulation. partly from difference of soil. A large proportion of *twankay* tea is the growth of a different district from that which produces the *hysons*. When a tea merchant buys green tea from the farmer, he subjects it to the following process to obtain the varieties; he sifts it through one sieve, which takes out the dust, the *young hyson* and the *gun powder*; then through another sieve, which passes the *small leaf hyson* of commerce; two other sieves successively take out the second and largest degree of size, and what does

not pass the third sieve forms *hyson skin*. The teas then undergo the process of firing, in an iron pan, at a great degree of heat, which gives the leaves a tighter twist, and brings them up to their color.—The tea which passes the first sieve is then put into a winnowing machine, and the fan blows out the light leaf at the farther end, the larger broken leaf at shorter distance. The heavier teas, as the gunpowder and hyson, falls nearer to or further from the hopper, according to the gravity, and are then separated by the winnowing machine. When fairly made, the difference between young hyson and the gunpowder will be this; the young leaf which takes the long twist, will form the young hyson, and that which takes the round twist will form the gunpowder.—[Baltimore American.]

Life Prolonged by Civilization.—If we collect England, Germany, and France, in one group, we find that the average term of mortality which, in that great populous region, was formerly one in thirty people annually, is not at present more than one in thirty eight. This difference reduces the number of deaths throughout these countries from 1,900,000 to less than 1,200.000 persons; and 700,000 lives, or one in eighty three annually, owe their preservation to the social ameliorations effected in the three countries of western Europe whose efforts to obtain this object have been attended with the greatest success. The life of man is thus not only embellished in its course by the advancement of civilization, but is extended by it and rendered less doubtful. The effects of the amelioration of the social condition are to restrain and diminish, in proportion to the population, the annual number of births, and in a still greater degree that of deaths: on the contrary, a great number of births, equalled or even exceeded by that of deaths, is a characteristic sign of a state of barbarism. In the former case, as man in a mass reach the plentitude of their physical and social developement, the population is strong, intelligent, and manly; while it remains in perpetual infancy, whole generations are swept off without being able to profit by the past,—to bring social economy to perfection.—[Philosophical Journal.]

[*From the London Spectator.*]

MADAME JUNOT'S CELEBRATED WOMEN.—The subject of these biographical notices have been hitherto, almost exclusevely, either unhappy in their destiny or unamiable in their dispositions. The Third Number contains the memoirs and portraits of Charlotte Corday, the lovely and misguided murderess of Marat; Josephine, the amiable and repudiated wife of Napoleon; Bloody Queen Mary; and a personage less familiar to the reader, and whose career is most remarkable of all—Maryna Mniszech, a Polish lady, who became Czarina of Muscovy.

The adventures of this woman belong to the romance of biography. Her father was an ambitious man, whose ruling passion was flattered by a fortune-teller predicting that his daughter, then a child, should wear a crown. From that moment the idea took possession of his brain; and he not only anticipated the fulfilment of the prediction, but had his daughter reared up in the expectation of her high destiny. It is scarcely to be wondered that the girl also became inoculated with this fever of ambition; but that they should have ultimately accomplished the object for which alone they lived, is strange. Their diseased aspirations found a congenial subject in the person of an impostor, who pretended to be Dmitry, the murdered son of Ivan the Fourth; with whom the father of Maryna contracted his daughter in marriage, on condition of his obtaining possession of the usurped throne of Muscovy. The artificial sympathy which these two deluded creatures entertained for each other, ripened into a strong natural affection; and the overthrow of the usurper and the accession of the pretended rightful heir to the throne of Ivan realized their drama of greatness. Their felicity was, however, shortlived. So soon as the usurper's fate was sealed, doubts were raised as to the legitimacy of the claims of the new Czar: his pretensions would not bear scrutiny; plots were formed against him, and the unhappy man was murdered in the Kremlin. The subsequent career of his widow affords an extraordinary instance of the predominance of the ruling passion. On her way to her native country, she was captured by the troops of a man who, they stated, was her supposed murdered husband, recovered from his wounds. Being led into his presence, she was struck with amazement and disgust, at beholding a loathsome, vile and ill-looking Jew—a brute from whose violence she had formerly rescued a young and helpless maiden. This wretch stimulated only by desire of gain, and encouraged by the success of her husband, had proclaimed himself the murdered Czar: who was thus represented to have twice miraculously escaped the daggers of his enemies. The very extravagance of his pretensions seems to have aided his success; or the people were so eager for a Czar, that they grasped at the shadow of a sovereign. The Jew was at the gates of Muscow, backed by a victorious band of followers; and only wanted the assistance of Maryna to accomplish his object. Urged by her father's entreaties, and stimulated by her own thirst for power, she consented to be a party to the trick, and publicly acknowledged the hateful Jew as her identical husband. She soon found, however, that the impostor sought money only, and not command, and that he had seized upon the vacant throne only to sell his abdication. This she resolved if possible to prevent. Scornfully upbraiding him, she said, "Thou shalt either reign, or die;" and kept a strict guard upon all his movements. At last, in the confusion of a battle that ensued, the wretch contrived to escape, but Maryna, now mad for sovereignty, disguised herself as a soldier, pursued, and brought him back. In defence of her throne, she performed prodigies of valor; but was at length taken and condemned to death. The very night before her intended execution, she was liberated by one of her countrymen, who had loved her from a youth, and had followed her through all the vicissitudes of her fortune. She became his wife, and at the same time mistress of a horde of Cossacks, of which he was the Chieftain. Not contented with a predatory rule, she planned and achieved the conquest of Astracan; where for a short time she once more reigned over a kingdom. But here too her power was of short duration; she was attacked and defeated by the Russians in a pitched battle: and escaping only with life, wandered with her husband and her infant over the frozen steppes of the Oural Mountains; where the miserable group perished by the hands of a troop of soldiers, and found a grave in the snowy desert, History does not furnish a more fearful lesson upon the miseries of false ambition, than in the life of this wretched woman; who but for her father's folly might have equally adorned the world by her talents and her beauty.

The portraits that accompany the large edition of these memoirs, are beautiful and spirited specimens of French lithography. Those in the smaller series, are not only inferior in point of execution, but the faces are unlike, and deficient in character.

One of the sweetest things that Crabb ever wrote, is the following song of a heart-broken maid, cracked by the perfidy of her lover, and sighing gently to be at rest. The melody of the numbers is faultless, and beautifully harmonizes with the graceful pathos of the subject:—[Sketches of late English Poets.]

Let me not have this gloomy view
About my room, about my bed,
But morning roses, wet with dew,
To cool my burning brows instead;
As flowers that once in Eden grew,
Let them their fragrant spirits shed,
And every day their sweets renew
Till I, a fading flower, am dead.

O let the herbs I loved to rear
Give to my sense their perfumed breath!
Let them be placed about my bier,
And grace the gloomy house of death.
I'll have my grave beneath a hill,
Which only Lucy's self shall know,
Where runs the pure pellucid rill
Upon its gravelly bed below:
There violets on the borders blow,
And insects their soft light display,
Till, as the morning sunbeams glow,
The cold phosphoric fires decay,
That in the grave to Lucy shown;
The soil a pure and silver sand,
The green cold moss about it grown
Unplucked of all but maiden hand,
In virgin earth, till then unturned,
There let my maiden form be laid;
Nor let my changed clay be spurned,
Nor for new guests that bed be made.

There will the lark, the lamb, in sport,
In air, on earth, securely play;
And Lucy to my grave resort,
As innocent, but not so gay,
I will not have the churchyard ground,
With bones all black and ugly grown,
To press my shivering body round,
Or on my wasted limbs be thrown.

With ribs and skulls I will not sleep
In clammy beds of cold blue clay,
Through which the ringed earth-worms creep,
And on the shrouded bosom prey.
I will not have the bell proclaim
When those sad marriage rites begin,
And boys, without regard or shame,
Press the vile mouldering masses in.

Say not, it is beneath my care,—
I cannot these cold truths allow;
These thoughts may not afflict me there,
But O! they vex and tease me now!
Raise not a turf, nor set a stone,
That man a maiden's grave may trace,
But thou, my Lucy, come alone,
And let affection find the place!

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☞ THE AMERICAN STEAM CARRIAGECOMPANY, OF PHILADELPHIA, respectfully inform the public, and especially Railroad and Transportation Companies, that they have become sole proprietors of certain improvements in the construction of Locomotive Engines and other railway carriages, secured to Col. Stephen H. Long, of the United States Engineers, by letters patent from the United States, and that they are prepared to execute any orders for the construction of Locomotive Engines, Tenders, &c. with which they may be favored, and pledge themselves to a punctual compliance with any engagements they may make in reference to this line of business.

They have already in their possession the requisite apparatus for the construction of three classes of engines, viz. engines weighing four, five, and six tons.

The engines made by them will be warranted to travel at the following rates of speed, viz. a six ton engine at a speed of 15 miles per hour; a five ton engine at a speed of 18 miles per hour; a four ton engine at a speed of 22 1-2 miles per hour. Their performance in other respects will be warranted to equal that of the best English engines of the same class, with respect not only to their efficiency in the conveyance of burthens, but to their durability, and the cheapness and facility of their repairs.

The engines will be adapted to the use of anthracite coal-pine, wood, coke, or any other fuel hitherto used in locomotive engines.

The terms shall be quite as favorable, and even more moderate, than those on which engines of the same class can be procured from abroad.

All orders for engines, &c. and other communications in reference to the subject, will be addressed to the subscriber, in the city of Philadelphia, and shall receive prompt attention.

By order of the Company,
WILLIAM NORRIS, Secretary.

December 2d, 1833.

For further information on this subject see No. 49, page 772, Vol. 2, of Railroad Journal.

MECHANICS MAGAZINE.

THE NUMBER FOR OCTOBER 31, will be ready for delivery to Subscribers on Monday next. It contains numerous articles, and a concise account of the FAIR of the AMERICAN INSTITUTE held at NIBLOS' GARDENS, illustrated ;with numerous engravings.

☞ MECHANICS' and OTHERS who feel interested in endeavoring to abolish the abominable "STATE PRISON MONOPOLY" are requested to forward to the Editor such facts as come within their knowledge, and they will be published if authenticated.

The Mechanics' Magazine and Register of Inventions and Improvements is published by the Proprietors, D. K. MINOR & J. E. CHALLIS, at No. 35 Wall-street, New York: in *weekly* sheets of 16 pages, at 6¼ cents—in monthly parts of 64 pages, at 31¼ cents—in volumes of 384 pages, in cloth boards, at $1.75—or at $3 per annum, *in advance*.—JOHN KNIGHT, (formerly proprietor of the London Mechanics' Magazine,) Editor.

There is no publication in our country calculated better to serve the interests of practical men, than the work before us.—*Nantucket Inquirer.*

To gratify the thirst for knowledge evinced by the mechanics of the United States the publication was udertaken, and surely any effort calculated to advance a profession which has given birth to a Fulton, a Watt, a Whitney, a Franklin, an Arkwright, and other bright names, should meet with encouragement.—*Georgian.*

The Magazine is well worthy the patronage of every mechanic, and should be taken by every scientific and ingenious man.—*Hartford Times.*

It is a valuable compe ndof that species of information which we should suppose the enterprise and inventive genius of our countrymen require, giving as it does, in a concise and familiar shape, an account of what others are doing and have discovered or invented; inciting to emulation, and at the same time furnishing useful hints for the prosecution of researches already begun, if not for further discoveries and inventions, calculated to extend the bounds of human knowledge.—*Albany Daily Argus.*

We look upon this periodical as the best of its kind our country affords. To practical mechanics it particularly recommends itself, as embodying a great mass of information directly bearing on their employments and interests. The scientific man will find in its pages essays and remarks well adapted to his pursuits, and the general reader cannot fail to peruse its contents with increasing gratification, as affording him a continued supply of interesting and useful instruction. The best support of our institutions and government is knowledge diffused among the people, and every effort which tends to promote this end should have encouragement—the publication before us being calculated in an eminent degree to serve so high an object, possesses a just claim to our patronage.—*Salem Gazette.*

It is stored with representations and descriptions of improvements in machinery, and of newly invented articles, together with information valuable to every class of citizens.—*U S. Gazette, Philadelphia.*

This is truly an excellent Magazine, and we take pleasure in commending it to the public, especially to that class of community for whom it is particularly intended. It should be in the hands of every mechanic, and if an individual cannot afford to take it alone, let him associate himself with others and procure it; and if attentively read, we believe no intelligent man will consider his money idly spent in its procurement.—*Schenectady Gazette.*

The work needs only to become known to insure it a very extensive circulation. It certainly cannot fail to be highly interesting and useful to the numerous class of persons for whom it is particularly designed.—*Paterson Intelligencer.*

It forms a truly valuable repository, alike suitable to the drawing room and to the cottage.—*Watertown Register.*

We have watched the course of this publication with some solicitude; for we felt convinced that the field was so wide, which the work, to be advantageous, should occupy, that it would need more than ordinary good common sense, tact, ingenuity, and industry, in its conductor, to fill up the chasm which the absence of a work of this nature, purely, had left in this mechanical country. Enthusiastic bigots, the cells of whose brains were filled with cob-webs, have been looking for the philosopher's stone from their own preparations in earthen crucibles. Enveloped in mist, their spectacles never allowed them to discover that the true STONE was the *type* and *press* of a printing office in the hands of a sensible tactician, who delves among the precious lore which the varied mind of man is continually displaying to his gaze, plucking the heart out of every book, sucking the sweets from every fugitive sheet, and, forming from the varied mass an intellectual treat, which, if it does not gratify the taste of Cressus, would command the attention of Solomon, Archimedes, and Newton.

We say unhesitatingly that the New-York Mechanics' Magazine has greatly improved in matter and appearance, since this year commenced. The number now before us would sufficiently bear us out in all we might say as to the discrimination, industry, and intelligence of Mr. KNIGHT, its editor.—*Old Countryman.*

We have several times given our exalted opinion of this monthly periodical, and have done so in great sincerity, with an ardent desire that our friends might avail themselves of its usefulness by becoming subscribers. There is that intrinsic merit in the work itself which sufficiently justifies all that can be said of it, as containing a collection of the most useful and practical information on every subject interesting to the industrious man, be he of whatever denomination he may.—*Mercantile & Advocate.*

It is a valuable compend of that species of information which we should suppose the enterprise and inventive genius of our countrymen require, giving as it does, in a concise and familiar shape, an account of what others are doing and have discovered or invented, inciting to emulation, and at the same time furnishing useful hints for the prosecution of researches already begun, if not for further discoveries and inventions, calculated to extend the bounds of human knowledge.—*Onondaga Standard.*

Every mechanic who wishes to keep pace with the improvement of the age, to avail himself of the aid which science is constantly bringing to art, should subscribe for the Mechanics' Magazine.—*Washington Spy.*

It is ably conducted, contains a large mass of the most useful and interesting matter, is neatly executed, and upon the whole is better calculated to diffuse useful and valuable information in relation to the various subjects of which it treats, than any publication with which we are acquainted, and this, too, so cheaply, that none can complain of the price.—*Washington Republican.*

The October number of this valuable work is before us. The design is truly laudable; the public good requires its circulation, and its execution is exceeding good. Mechanics of Morris county and Morristown; are you not prepared to sustain a work of this character?—*Jerseyman.*

A glance over its pages will convince any person of the great utility of such a work. Its contents are varied—almost every subject in the range of mechanism is touched upon—and its reduced price, three dollars per annum, places a system of modern architecture within the reach of nearly every person.—*Hillsborough Gazette.*

30oct tf

PATENT RAILROAD, SHIP AND BOAT SPIKES.

☞ The Troy Iron and Nail Factory keep constantly fo sale a very extensive assortment of Wrought Spikes and Nails: from 3 to 10 inches. manufactured by the subscriber's Paten Machinery, which after five years successful operation and now almost universal use in the United States (as well as England, where the subscriber obtained a Patent,) are found superior to any ever offered in market.

Railroad Companies may be supplied with Spikes having countersink heads suitable to the holes in iron rails, to any amount andjon short notice. Almost all the Railroads now in progress in the United States are fastened with Spikes made at the above named factory—for which purpose they are found invaluable, as their adhesion is more than double any common spikes made by the hammer.

☞ All orders directed to the Agent, Troy, N. Y., will be punctually attended to.

HENRY BURDEN, Agent.

Tro N. Y. July, 1831.

☞ Spikes are kept for sale, at factory prices, by I. & J Townsend, Albany, and the principal Iron Merchants in Albany and Troy; J. I. Brower, 222 Water street, New-York; A. M. Jones, Philadelphia; T. Janviers, Baltimore; Degrand & Smith, Boston.

P. S.—Railroad Companies would do well to forward their orders as early as practical, as the subscriber is desirous of extending the manufacturing so as to keep pace with the daily increasing demand for his Spikes.

J23 1am H. BURDEN.

SURVEYING AND ENGINEERING INSTRUMENTS.

☞ The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship,to any imported or manufactured in the United States; several of which are entirely *new*: among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also, a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG,
Mathematical Instrument Maker, No. 9 Dock street,
Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.:

Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad. I cheerfully furnish thee with the following information The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sights, leaves the engineer scarcely any thing to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to lateral angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, Ithink it will be as highly appreciated for common surveying.

Respectfully thy friend,
JAMES P. STABLER, Superintendant of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833.

Having for the last two years made constant use of Mr. Young's "Patent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind, now in use, and as such most cheerfully recommend it to Engineers and Surveyors. E. H. GILL, Civil Engineer.

Germantown, February, 1833.

For a year past I have used Instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these Instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad.,
Germant. and Norrist. Railroad

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STEPHENSON,

Builder of a superior style of Passenger Cars for Railroad

No. 264 Elizabethstreet, near Bleecker street,
New-York.

☞ RAILROAD COMPANIES would do well to examin hese Cars; a specimen of which may be seen on that part o he New-York and Harlæm Railroad, now in operation.

J25 tf

RAILROAD CAR WHEELS AND BOXES,

AND OTHER RAILROAD CASTINGS.

☞ Also. AXLES furnished and fitted to wheels complete at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New-York, will be promptly attended to. Also, CAR SPRINGS.

Also, Flange Tires turned complete.

J8 ROGERS, KETCHUM & GROSVENOR.

NOVELTY WORKS,

Near Dry Dock, New-York.

☞ THOMAS B. STILLMAN, Manufacturer of Steam Engines, Boilers, Railroad and Mill Work, Lathes, Presses, and other Machinery. Also, Dr. Nott's Patent Tubular Boilers, which are warranted, for safety and economy, to be superior to any thing of the kind heretofore used. The fullest assurance is given that work shall be done well, and on reasonable terms. A share of public patronage is respectfully solicited. m18

INSTRUMENTS.

SURVEYING AND NAUTICAL INSTRUMENT MANUFACTORY.

☞ EWIN & HEARTTE, at the sign of the Quadrant, No. 53 South street, one door north of the Union Hotel, Baltimore, beg leave to inform their friends and the public, especially Engineers, that they continue to manufacture to order and keep for sale every description of Instruments in the above branches, which they can furnish at the shortest notice, and on fair terms. Instruments repaired with care and promptitude.

For proof of the high estimation on which their Surveying Instruments are held, they respectfully beg leave to tender to the public perusal, the following certificates from gentlemen of distinguished scientific attainments.

To Ewin & Heartte.—Agreeably to your request made some months since, I now offer you my opinion of the Instruments made at your establishment, for the Baltimore and Ohio Railroad Company. This opinion would have been given at a much earlier period, but was intentionally delayed, in order to afford a longer time for the trial of the Instruments, so that I could speak with the greater confidence of their merits, if such they should be found to possess.

It is with much pleasure I can now state that notwithstanding the Instruments in the service procured from our northern cities are considered good, I have a decided preference for those manufactured by you. Of the whole number manufactured for the Department of Construction, to wit: five Levels, and five of the Compasses, not one has required any repairs within the last twelve months, except from the occasional imperfection of a screw, or from accidents, to which all Instruments are liable

They possess a firmness and stability, and at the same time a neatness and beauty of execution, which reflect much credit on the artists engaged in their construction.

I can with confidence recommend them as being worthy the notice of Companies engaged in Internal Improvements, who may require Instruments of superior workmanship.

JAMES P. STABLER,
Superintendent of Construction of the Baltimore and Ohio Railroad.

I have examined with care several Engineers' Instruments of your Manufacture, particularly Spirit levels, and Surveyor's Compasses; and take pleasure in expressing my opinion of the excellence of the workmanship. The parts of the levels appeared well proportioned to secure facility in use, and accuracy and permanency in adjustments.

These instruments seemed to me to possess all the modern improvement of construction, of which so many have been made within these few years; and I have no doubt but they will give every satisfaction when used in the field.

WILLIAM HOWARD, U. S. Civil Engineer.

Baltimore, May 1st, 1833.

To Messrs Ewin and Heartte—As you have asked me to give my opinion of the merits of those instruments of your manufacture which I have either used or examined, I cheerfully state that as far as my opportunities of my becoming aquainted with their qualities have gone, I have great reason to think well of the skill displayed in their construction. The neatness of their workmanship has been the subject of frequent remark by myself, and of the accuracy of their performance I have received satisfactory assurance from others, whose opinion I respect, and who have had them for a considerable time in use. The efforts you have made since your establishment in this city, to relieve us of the necessity of sending elsewhere for what we may want in our line, deserve the unqualified approbation and our warm encouragement. Wishing you all the success which your enterprize so well merits, I remain, yours, &c.

B. H LATROBE,
Civil Engineer in the service of the Baltimore and Ohio Railroad Company.

A number of other letters are in our possession and might be introduced, but are too lengthy. We should be happy to submit them, upon application, to any person desirous of perusing the same. m25